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ANNEX

KAT
Smith

THE

WONDERS

OF

ATURE AND ART;

OR,

A CONCISE ACCOUNT

OF

HATEVER IS MOST CURIOUS AND REMARKABLE

IN

THE WORLD;

ither relating to its Animal, Vegetable, and Mineral Productions, or to the Manufactures, Buildings, and Inventions of its Inhabitants,

ilied from Historical and Geographical Works of established thority, and illustrated with the Discoveries of modern Travellers.

By the Rev. THOMAS SMITH,

thor of the UNIVERSAL ATLAS, SACRED MIRROR, &c. &c.

" Review these numerous scenes, at once survey
Nature's wonderful face, then Sceptics say,
In this wide field of wonders, can you find
No art discover'd, and no end design'd?"

VOL. IX.

LONDON:

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ERS

ND ART.

CA.

I.

RICA.

Soil, &c.

ninsula, surrounded
pt at the isthmus of
to North America.
and the Atlantic on
on the east; by that
sts of the mingled
pic, and the Antarc-
l by the Pacific ocean
and north, from be-
fifth degrees of south
th latitude; and east
y-fifth and eighteth
from London; com-

Fossils . . . . . .
Vegetables . . . . . .
Minerals . . . . . .
Caves, Springs, Lakes, Geysers, &c. . . . . .
Meteorology . . . . . .
Zoology . . . . . .
Miscellaneous Curiosities . . . . . .
Census, Statistics, Religion, and Government of the Inhabitants of North America . . . .

WONDERS

OF

NATURE AND ART.

PART IV.

AMERICA.

CHAP. I.

OF SOUTH AMERICA.

Situation, Climate, Soil, &c.

SOUTH AMERICA is a peninsula, surrounded on all sides by the ocean, except at the isthmus of Darien, by which it is joined to North America. It is bounded by this isthmus and the Atlantic on the north; by the Ethiopic on the east; by that boundless ocean which consists of the mingled waves of the Pacific, the Ethiopic, and the Antarctic Icy Seas, on the south; and by the Pacific ocean on the west. It extends, south and north, from between the fifty-fourth and fifty-fifth degrees of south latitude, to the twelfth of north latitude; and east and west between the thirty-fifth and eightieth degrees of west longitude from London; com-

39 X677 1

prehending, though not the larges
richest division of the American cont

The climate of South America,
greater part of it lies in the torrid z
intolerably hot as that of those count
in the same degree of latitude in the
of the globe. Some parts of Peru,
tirely within the tropics, are disag
owing to the air blowing from the
one side, and the snow covered tops
on the other: and the climate of Ch
within the temperate zone, is one o
lightfully moderate in the world.
it varies very considerably, the air
sultry, and in others cool; though
warmest toward the north; some p
ing frequently flooded while other
dry. But in those places where it r
soil, which is generally very fertile,
watered by dews to render it produc

From May to November (the sea
ter by the natives) there is in some
nual succession of thunder, rain, and
rains falling with such impetuosity
plains the appearance of an ocean.
in dry weather, the perpetual verdu
the luxuriance of the plains, and th
all kinds which the country produce
terbalance the winter storms; yet
earthquakes it is occasionally sub
than outweigh even the richest
mines which are indisputably the
known world.

OUNTAINS, SPRINGS, VOLCANOES, EARTH-QUAKES, RIVERS, BRIDGES, &c.

It is generally allowed, that the mountains of South America are not to be paralleled in any other part of the world, for their surprising height and extent; witness that prodigious chain of them called the Andes, which begins in the most northern part of Peru, and extends itself quite to the Straits of Magellan, a length of between three and four thousand miles. Acosta relates, that he once ascended one of the highest of these mountains in Peru, called Pariacaca; and that he went prepared according to the best instructions he could get, with several more who had the like curiosity; but, notwithstanding all his precaution, when he came near the top he was seized with such pains that he thought he should have fallen to the ground; and, the rest of the company feeling similar emotions, they all hastened down as fast as they could, without waiting for one another. They were all taken with violent retchings, and not only brought up green phlegm and choler, but a great deal of blood. This lasted for three or four hours, till they had ascended to the lower part of the mountain; but it seems that the sickness generally goes off before they get to the bottom, and is attended with no ill consequences.

People who pass this ridge of mountains in any part of them, for upwards of five hundred leagues, are affected in like manner, but more in some places than in others. Acosta had passed the Andes at four other different places, and always felt the like disorder, but not so much as at Pariacaca; and the best remedy they found against it

was to stop their mouths, noses, and ears a
as possible; the air being so subtile and p
that it affects the entrails both of men and
This indeed is no wonder, since the heigh
Andes is such, that the Alps, in compa
them, seem but as ordinary houses in re
lofty towers. Hence our author conclud
the air on the top of these mountains was
and subtile for animals to breathe in, they r
a grosser medium *; and this, he suppose
sioned the above-mentioned disorder in
mach.

As to the retchings complained of b
who pass the Andes in Peru, it is remark
those who travel over that high chain of
Chili called the Cordillera, are not affect
such disorders, but only with a difficulty o
ing, which is perceived more or less on th
all high mountains: so that in Peru there
sibly be a concurrence of some other ca
sides the thinners of the air, to produce t

* As too gross, so too rare an air is unfit fo
tion, as appears not only from experiments m
air-pump, but from the accounts of those
been on the tops of very lofty mountains, wh
is considerably rarefied. A clergyman who h
the high mountains of Armenia, told Mr. B
whilst he was on the upper part of them he
to fetch his breath oftener than usual; and, tak
of it when he came down, the people told
what they themselves had frequently experien
some ecclesiastic made the like observation
of a mountain in the Cevennes; and a curiou
on one of the highest ridges of the Pyrenees,
de Midi, found the same inconvenience, he an
party being obliged to breathe shorter and ofter
the lower air. See Derham's Physico-Theo
and Phil. Trans. No. 63.

ts, since the mountains of Chili are consider-
higher, and consequently the air at the top of
is more rarefied.

order to give a more perfect idea of the cli-
on the top of these mountains, we shall give
account of that which prevailed on Pichincha,
the mathematicians, sent thither by the
of France and Spain, were stationed there,
der to make observations on the figure of the
. It ought to be observed, that this moun-
is almost directly under the equinoctial, and
though it is famous for its great height, it is
ve hundred and seventy-eight yards, in a per-
icular line, lower than the mountain of Co-
xi; but it will be impossible for the reader to
ceive the comparative coldness of the summit
e last-mentioned mountain, from that felt on
since it must exceed every idea that can be
ed in the human mind, though both are situ-
in the midst of the torrid zone.

chincha was formerly a volcano, but the
h, on one of its sides, is at present covered
sand and calcined matter, and neither fire
moke is seen to issue from it. Our learned
r Don George Juan de Ulloa observes, that he
the cold on its top extremely intense, and the
violent: they were also frequently involved
thick a fog, or, in other words, a cloud, that
ject at six or eight paces distance was scarcely
ptible. The air grew clear, by the clouds
nding nearer to the surface of the earth, when
on all sides, surrounded the mountain to a
distance, representing the sea, with the rock
ing like an island in the centre. When this
ened, they heard the dreadful noise of the
sts, that discharged themselves on the city

of Quito, and the neighbouring country
ing down, they saw the lightning issue
clouds, and heard the thunder roll fa
them. While the lower parts were
in thunder and rain, they enjoyed
ful serenity; the wind was abated, the
and the enlivening rays of the sun mod
severity of the cold. But, when the cl
their thickness rendered respiration diffi
and hail fell continually, and the wind
with all its violence; so that it was imp
overcome entirely the fear of being, tog
their hut, blown down the precipice, o
buried in it, by the daily accumulations
snow. Their fears were likewise inc
the fall of enormous fragments of rocks.
the smallest crevice, visible in their hut,
ped, the wind was so piercing, that it p
through; and, though the hut was sma
ed with inhabitants, and had several la
stantly burning, the cold was so great,
person was obliged to have a chafing-dis
and several men were constantly emplo
morning to remove the snow which fe
night. By the severity of this cold,
were swelled, and grew so tender, that t
not walk without extreme pain; their li
were covered with chilblains, and the
swelled and chapped, that every motion,
ing, made them bleed *.

* M. Bouguer, who was engaged in the sa
tion as the last mentioned gentleman, says, "T
all this range of mountains, as far as I have p
cumscent interior boundary, beyond which the s
melts; this boundary, in the midst of the tor
found to be two thousand four hundred and

From barometrical experiments made on the
mountain Cotopaxi, it appears that its summit is
levated six thousand two hundred and fifty-two
rds above the surface of the sea, something
ove three geographical miles, which greatly ex-
eeds the height of any other mountain in the
known world. Cotopaxi became a volcano at the
st arrival of the Spaniards in this country, and
new eruption happened in 1743, which had
en for some days preceded by a continual rumb-
g in its bowels: after which an aperture was
ade in its summit, and likewise three others,
ar the middle of its declivity, at that period
ried under prodigious masses of snow. The
nited substances ejected on that occasion, mixed
th the vast quantity of snow and ice, melting
midst the flames, were carried down with such
azing rapidity, that, in an instant, the plain
m Callao to Latacunga was inundated, the
ses of the poor inhabitants were borne down,
d great numbers of them perished. The river
Latacunga was the canal of this dreadful flood,
, being too small for receiving the prodigious
rrent, it overflowed the adjacent country, car-
d away all the buildings within its reach, and
ndered the land, near the town of the same
me, like a vast lake. The inhabitants retired
spot of higher ground behind the town, while
e parts of it that stood within the limits of
e current, were entirely destroyed. During

ams above the level of the South Sea. The snow,
ed, falls much lower, but then it is subject to be
ed the very same day; whereas, above that, it pro-
ves itself,

"The gather'd winter of a thousand years."

three days the volcano ejected cinders, while torrents of melted ice and snow poured down its sides. The fire lasted several days longer, and was accompanied with terrible roarings of the wind, rushing through the mouth of the volcano. At last all was quiet, and neither fire nor smoke were to be seen. But, in May 1744, the flames forced a passage through several other parts on the sides of the mountain; so that, in clear nights, the flames, being reflected by the transparent ice, formed a very grand and beautiful illumination. But, on the thirteenth of November following, it ejected such prodigious quantities of fire and ignited substances, that an inundation, equal to the former, soon ensued; and the inhabitants of the town of Latacunga, for some time, gave themselves over for lost.

We are told that there are fiery meteors about these mountains, sometimes so high in the air, as to resemble stars, and sometimes so low, as to frighten the mules, by buzzing about their ears and feet. But a phænomenon, which in this climate must appear very extraordinary, is said by M. Bouguer to happen almost every day on the tops of these mountains; though these gentlemen were the first who ever mentioned them in Europe. The first time our authors observed it was, when they were on the summit of Pambamorca, a mountain not so high as Pichincha. A cloud, in which

the following; and, at some distance from
m all, was a fourth arch, entirely white.
ese were perpendicular to the horizon; and,
the person moved, the phænomenon moved
o. But, what was very extraordinary, though
re were six or seven persons, each could see
ne but his own shadow, because the cloud had
uneven surface. The diameter of the arches
dually altered with the ascent of the sun above
horizon, and the phænomenon itself, after
tinuing a considerable time, insensibly vanish-
. Several of the gentlemen, both French and
niards, have particularly described this phæ-
menon, and M. Bouguer concludes with say-
, "This was a kind of apotheosis to each
ctator; and I cannot forbear mentioning again,
t each enjoyed the secret pleasure of seeing him-
f adorned with all these crowns, without per-
ving those of his neighbours. I must, how-
r, observe, that this phænomenon never ap-
rs, but when the aqueous particles of the cloud
frozen."
Ulloa observes, that the roads over some of
e mountains are not the least of those many
traordinary particulars relating to them. These
in many places so narrow, that the mules
e scarcely room to set their feet, and in others
re is a continued series of precipices. These
ads are, likewise, full of holes, near three quar-
of a yard deep, in which the mules put their

them right, the rider falls, and, if on the
the precipice, inevitably perishes. But
ner of descending appears still more da
On one side are frequently steep eminen
on the other dreadful abysses; and, as
nerally follow the direction of the moun
road, instead of being on a level, forn
eminences, and declivities. The mules
sible of the caution necessary in these d
for coming to the top of an eminence th
and having placed their fore feet close
put their hinder feet a little forwards, as
to lie down. Having in this attitude tak
vey of the road, they slide down with t
ness of a meteor. All the rider has to
keep himself fast in the saddle; for the
tion is sufficient to disorder the equilibri
mule, in which case, they both una
perish. Nothing, says our author, can
amazing than the animal's address on t
sion, for during this rapid motion, when
to have lost all government of himself, h
with the utmost exactness the different
of the road, as if he had accurately settl
mind all the turnings he was to follow, a
every precaution for his safety. Yet th
practice in travelling these roads cannot
free the mules from a kind of dread, w
experience on arriving at the top of a
clivity; for they not only attentively

ut tremble and snort at the danger. If
er inadvertently endeavour to spur them
y continue immoveable, till, at length,
overcome the first emotions of their fear,
etch out their fore legs, that by preserv-
oper balance, they may not pitch head
s; and it is wonderful to consider how
ke with their body, all the gentle incli-
necessary to enable them to follow the
windings of the road, and afterwards
dress in stopping themselves at the end of
petuous career.

ediousness and danger of the way, how-
in some parts, alleviated and rendered
erable by the fine prospects and agree-
cades naturally formed among the rocks
ntains. In some parts, the water in the
springs up to a great height, like artificial
s, amongst odoriferous plants and flowers,
ld a delightful prospect. Many of these
and springs are so exceedingly cold, that
an scarcely drink them, or hold his hand in
ove a minute; but in some places there
springs, which leave a green tincture in
nnel through which they pass, and are
d good against many distempers.

most of the mountains flow large and
vers, and we read of a natural bridge of
ver one of them, from the vault of which
veral pieces of stone resembling icicles,
s the water drops from the rock, into va-
nes and of different colours. This bridge

of nature. It is so far above the riv
could not hear the stream, though it
great rapidity; and, though the river be
siderable breadth, it appeared like a br
he looked down from the bridge, whic
not do without horror.

The bridges made by art are generall
being commodious. Of these there are t
besides those of stone, which are very f
most common are of wood, and the rest
jucos, a plant we shall particularly desc
we come to treat of the vegetables of So
rica. With respect to the first, they
place where the river is very narrow, a
each side high rocks. These bridges or
of four long beams laid from one precip
other, forming a path about a yard and
breadth, just sufficient for a man to pa
horseback; and custom has rendered t
miliar, that people pass them without a
hensions. Those formed of bejucos
used but where the breadth of the rive
admit of beams being laid across.
these bejucos are twisted together, in
form a large cable of the length require
of them are drawn from one side of th
the other, two of which being consider
er than the other four, serve for rail
three at the bottom, are wattled sticks
and the whole is not unlike a fishing-n
dian hammoc, stretched from one side o
to the other; but, as the meshes of t
very large, and the foot would be in
slipping through, they cover the bot
reeds, which serve for a floor. The m
of this kind of basket bridge, and much

ight of a man passing over, must cause it to
ke a prodigious bend; and, if it be considered
t the passenger, when in the midst of his
rse, especially if there be a wind, is exposed
be swung from side to side, a bridge of this
t, sometimes above ninety feet long, must
pear extremely frightful; yet the Indians run
r it, loaded with the baggage and pack-sad-
s of the mules, laughing to see the Europeans
aid of venturing. The greatest part of these
dges are only for men and women, the mules
imming over the rivers; for their loading be-
taken off, they are driven into the water
ut a mile and a half above the bridge, in order
t they may reach the opposite shore near it,
y being usually carried so far by the rapidity of
stream.

nstead of a bejuco bridge, some rivers are
sed by means of a tarabita, which is a single
e, either made of bejucos, or thongs cut from
hide of an ox, and consisting of several strands,
ich, when twisted, form a rope of six or eight
hes in thickness. This is extended across the
r and fastened on one side to a strong post, and
the other to a wheel, that it may be strait-
d or slackened as occasion serves. From the
bita, hangs a kind of leathern hammoc, large

prodigious stones continually carried alon
it, render it impracticable for them to swim
For carrying over the mules, two tarabita
used, one for each side of the river; and
are much thicker and stouter. On this ro
only one rope or loop, which is of wood; a
this a beast is suspended, being fastened
with girths round the belly and neck. W
this is performed, the creature is pushed o
almost immediately landed on the opposite
Animals accustomed to be conveyed over i
manner never make the least opposition, but
of themselves to have the girths fastened
them: yet they are at first brought with
difficulty to suffer this to be done, and
their finding themselves suspended in th
kick and plunge violently during their
passage.

But, according to Acosta, there is
greater danger in travelling over some
mountains of Peru, than any we have yet
oned. He tells us, that there are mounta
uninhabited deserts, where a sudden blast
sometimes strikes a traveller dead in an in
and that the Spaniards formerly passed
mountains in their way to Chili, but now
go by sea, or take another road by land, to
the danger of crossing them, in which ju
many have perished, and others have lost
fingers and toes, and have been rendered
ples. The same author relates, that g
Castilla marching over them with his army,
part of his men suddenly fell down dead
their bodies remained there without sten
corruption. As incredible as this appe
seems to be confirmed by the reports of tra

n, who assure us, that they have seen great
ers of bodies of men, women, and chil-
lying dead upon the sands in Peru, and
g as fresh as if they had not lain there a
; but, when they were handled, they proved
and light as a spunge or piece of cork.
ever was the cause of the death of these peo-
t is agreed on all hands, that the dryness of
ruvian air, and the heat of the sands, pre-
d their bodies from putrefaction.
e audience of Lima enjoys extraordinary
tages in being free from tempest, thunder,
ing, snow, hail, and rain; but we have
y observed that it is subject to earthquakes,
happen so frequently, that the inhabitants
der continual apprehensions of being buried
ruins of their own houses: yet they are
o have their presages; one of the chief of
is a rumbling noise in the bowels of the
about a minute before the shocks are felt,
ems to pervade all the adjacent subterra-
parts. This is followed by the howlings of
gs, who appear sensible of the approaching
r; and the very beasts of burden, passing
reets, are observed to stop, and, by a natural
ct, to spread open their legs, the better to
e themselves from falling. These portents
sooner observed, than the terrified inhabi-
fly from their houses into the streets, with
precipitation, that, if it happens in the night,
appear quite naked, fear and the urgency
danger banishing all sense of decency.
sudden concourse is accompanied with the
of children, awaked from sleep, mingled
the lamentations of the women, whose agon-
prayers to the saints increase the common

fear and confusion; and, the men being al
much affected to refrain from giving vent to
terror, the whole city exhibits a dreadful sce
horror and consternation.

The earthquakes that have happened in
city of Lima, are very numerous; but we
only mention two of them. One of the mos
rible was on the twenty-eighth of October, 1
and began at four in the morning, with the
struction of many of the finest public building
houses, in which a great number of the inhabi
perished; but this was little more than a pre
of what followed; for, two hours after, the s
returned with such impetuous concussions,
all was laid in ruins, and the inhabitants beg
think themselves happy in the preservatio
their lives, and being only spectators of the
neral devastation, and the loss of all their
perty. But during this second shock, the
retiring considerably, and then returning in m
tainous waves, entirely overwhelmed Callao,
the adjacent country, together with the mise
inhabitants.

From that time six earthquakes happene
Lima before the dreadful one of 1746. This
at half an hour after ten at night, when
concussions began with such violence, th
little more than three minutes the greatest pa
not all the buildings, in this fine and beautiful
were destroyed, and those of the inhabitants
not made sufficient haste into the street
, were buried under the ruins. At le
ible effects of this first shock ceased,
quillity was of short duration, the
swiftly succeeding each other, and th
sinking into ruins; but what the ci

ered from the destruction of its buildings, was
nsiderable, when compared with the dreadful
strophe which followed; for the sea, as usual,
ding to a considerable distance, returned in
untainous waves, foaming with the violence of
agitation, and suddenly turned Callao and the
gbouring country into a sea. This, however,
s not perfectly performed by the first swell
the waves; for the sea, retiring still farther,
rned with greater impetuosity, and covered
h the walls and ruins of the place; so that what
even escaped the first, was now totally over-
elmed, by those terrible mountainous waves.
the harbour were twenty-three ships and ves-
, great and small; nineteen of which were
k, and the other four carried to a considerable
ance up the country. This terrible inundation
ended to other parts of the coast, and several
ns underwent the same fate with the city of
a.

The rivers of South America, especially those
ich take their rise to the eastward of the moun-
s we have been speaking of, deserve particular
ice, some of them being the largest in the world,
h with regard to their depth and breadth, and
length of their course; but most of those that
on the west side of the Andes are rather tor-
s than rivers, made by the annual rains that
on the mountains.—The Rio Grande or
gdalena, which has its source in the province
Quito in Peru, near the equator, runs directly
rthward above a thousand miles, and falls into
sea between Carthagena and St. Martha.—The
brated river Oronoque which has its source not
from that of Magdalena, after a winding course
seven hundred miles or upwards, falls into the

north sea near the isle of Trinidad, forming a l
gulf, in which there are many small islands.—
the most amazing river, and generally supp
the largest in the world, is that of the Amazon
which rises about ten leagues from Quito in P
and after many windings and turnings keep
course to the east, till it falls into the Atla
ocean between the coasts of Guiana and Br
Its channel, about sixty leagues from it's hea
three miles broad; and, as it receives many h
rivers in its course, it grows wider and wider
advances towards the ocean, where its mou

* It may not be amiss to acquaint the reader with the
gin of the name of this river, and of the country thr
which it flows. The Amazons, according to the an
historians, were a nation of warlike women, who fo
ed an empire in Asia Minor, along the coasts of the B
Sea, out of which men were excluded. What comm
they had with that sex was only with strangers at s
appointed times, and all their male children they ki
and cut off the right breast of the females, that their
might be the stronger and more at liberty in battle.
a point controverted indeed, even amongst an
writers, whether such a nation of Amazons ever exis
but the greatest part of them are on the affirmative si
the question. M. Petit, a French physician, publis
a Latin dissertation in 1685, to prove that there really
such a race of female warriors, wherein he has made
rious enquiries relating to their habit, their arms, th
ties they built, &c. Be this as it will, the Spaniards,
first discovered and sailed up the American river we
speaking of, were told of such a barbarous natio
women by some of the natives, on purpose to hig
them; and they actually found the women in sev
places bordering on the river, as fierce and warlike
the men, it being their custom to accompany their
bands to battle, and to share their fate; and ho
proceeded the name of the country and river of
Amazons.

fifty or sixty leagues in breadth. Even before it leaves Peru, its depth is ten or twelve fathoms, from whence it increases to twenty, thirty, fifty, and sometimes much more, before it reaches the ocean. From its source to its mouth it is eight or nine hundred leagues in a direct line; but the windings make it about twelve hundred, or eighteen, according to some computations.

There is another river of South America little inferior to the former in breadth and depth, though it does not equal it in length, viz. that called Rio de la Plata, which, reckoning only from the confluence of the two rivers that form it, runs above two hundred leagues, and is all the way navigable for the largest vessels, and full of delightful islands. In its course it receives several considerable rivers, and sometimes swells to such a height as to overflow a great deal of land on each side, during which time the natives betake themselves to their canoes, and when the inundation abates, return to their old habitations. It falls into the ocean by a mouth thirty leagues broad, running with such strength and rapidity, that it takes off the saltness of the sea to the distance of several miles. A certain author tells us, that the water of this river is very clear, sweet, and excellent for the lungs, so that the people who drink it have melodious voices, and are generally inclined to music; but such an account is too whimsical to be regarded. He adds, that it petrifies the branches of trees that fall into it, and that vessels of various figures are naturally formed of its sand, which keep water cool, and look as if they had received an artificial polish.

We shall *only* mention one more river, or at *least a considerable* stream of water, remarkable

for its subterraneous passage. This is in the eastern parts of Tucuman, a province of Paraguay, where it seems there is a very large and lofty mountain, which, from its glittering when the sun shines upon it, is called the crystal mountain. Under it is extended a frightful cavern, through which runs a river with so many windings and turnings that the water is twenty four or thirty hours in passage from one side of the mountain to the other, according to the computation of some Portuguese who were rash enough to make the experiment by hazarding their persons on a rafter made of canes.

As to the qualities of the waters in the southern part of America, it is observed that some lakes in the valleys are extremely hot, particularly one near Potosi in Peru, which perfectly boils in the middle, where the spring rises; but the water is so moderate near the shore, that the inhabitants bathe in it frequently. In the sandy plains near the coast of Peru there are very few springs, but great variety in that part which is remote from the sea; amongst which there is one near Orotava whose water is very hot, and after running a little way it petrifies and forms a rock. It is said the natives use the stone in building their houses, being soft, light, easily wrought, and yet very durable. Travellers also tell us of springs of liquid matter much resembling tar, and put to the same uses by sea-faring people.

At the baths of the Incas, (an appellation given to the ancient kings of Peru,) there is a spring of water that issues out hot and boiling, and another near it as cold as ice, which used to be temperated and mingled together for those princes to bathe in. —*Near Cusco there* is said to be a fountain,

ers, after a short course, turn into salt.—From top of the mountain Balconotta, by some reck- d the highest in Peru, there rise two springs, ch run different ways, and soon form two con- rable streams. Their waters, when they first e from the rocks, are of an ash-colour, hot and king, and smell like burning coals; which smell retain a great way from their source, till mingle with other streams, and become cool. To these we may add another fountain in Peru, ch sends forth a stream almost as red as blood, whence it has obtained the name of the Red er.

MINERALS, FOSSILS, &c.

ALMOST every part of South America affords nes of gold and silver, but those rich metals most abundantly found in Chili and Peru, as ll as large quantities of copper, tin, lead, and ksilver. It is observed, that gold is most fre- ently found native of all the metals, being rarely with in a state of ore, and then intermixed h the ores of other metals: but, though native d be free from the penetrating sulphurs which ince other metals to ores, it is very seldom found re, but has almost constantly a mixture of silver h it, and frequently of copper. If it have any siderable quantity of copper in it, it is easily covered by its hardness; but the silver is not so dily detected. Sometimes native gold is found the mines in pure masses, so large as to weigh lve, fourteen, or sixteen ounces; but these are *y rare. Its more* common appearance is in

loose state is in form of what is called gold
that is, small particles mixed among the sa
rivers, which is very frequent in Guinea, a
have already observed, and many other par
the world. But native gold is also found in a m
state, as to size, between the two kinds just
tioned, in the clifts or perpendicular fissures o
solid strata in the mountains of Chili. T
fissures are usually filled with a reddish earth
native gold being either loose amongst it, o
mersed in a debased crystalline stone of a b
hue, and generally in flattish pieces, from
size of a small pea to that of a horse bean. W
they have dug out this red marle, it is carrie
mules to the lavaderos (as they call them) a se
basons of water *, where it undergoes se
repeated lotions in different waters, till
earthy and impure parts are all separated and
ried away by the stream, and the gold left a
bottom.

In these forms gold frequently appears in t
parts of the world where it abounds, but still
greatest quantities of it are found bedded in m
of hard stone, which lie at vast depths, bein
ten dug at a hundred and fifty fathoms. The

* These lavatories or basons, according to M. Fr
are made somewhat in the form of a smith's bellows
which a little rivulet of water runs with a great deal
pidity, dissolving the parts of the earth, and car
every thing away with it except the particles of
which by their weight precipitate to the bottom. S
times large pieces of gold are found in these lavat
which usually turn to very great profit when the
no want of water, the expences of getting gold this
being but trifling, compared with those accruing i
common method, by machines, fire, and quicksilver.

so peculiar stone in which it is immersed, but it is met with indiscriminately in several kinds, some softer, some harder, and even in earths. The richest masses are usually a whitish but opake stone, which is a debased crystal, containing a great deal of white earth, often tinged likewise with black, and sometimes with other colours. In this stone the gold lies in a great variety of figures, sometimes like small branches, at other times interwoven in narrower or broader veins, or in little flat spangles intermixed with specks of black. But, besides this sort, there are many coarser stones in the mines of Peru, which contain considerable quantities of gold, visible in large or small spots; and these are of all colours, but generally white or reddish. In these stones the gold is commonly in small spangles.

In order to separate the gold when dug out of the mines, they first break the metalline stone or ore with iron mallets, and then carry it to the mills, where it is ground to a very fine powder, which is afterwards passed through several brass wire sieves, as fine as any we have made of silk. The powder thus prepared, is laid in wooden troughs, with a proper quantity of mercury and water, where it is worked together, and there left to saturate in the sun and air for forty-eight hours. During this time the mercury imbibes all the gold, without cohering with the coarser earth or sand, which, upon inclining the trough, is easily washed away with the water. The mass which then remains concreted at the bottom is nothing but gold, mercury, and some fine earth, which last they disengage from the mass by repeated effusions of hot water, and *the* mercury they separate by *distillation in large alembics*. The gold in this state,

though not yet perfectly pure, is called vi
gold, as well as that found in the sand of riv
or that in grains in the mines, as none of them h
passed the fire. After this they usually fuse i
crucibles, and cast it into plates or ingots.

The next metal to gold in value is silver, an
this the mines of Peru and some other part
America afford the greatest quantities of any in
world. This metal, as well as gold, is fo
native more frequently than in a state of
what are commonly called silver-ores, being
other than stones of various kinds, in which
bedded large quantities of native silver. So
times it is also contained in the softer fossil
earths; and sometimes it is found loose an
strata of sand. That which is lodged in ston
usually disposed in flat masses variously strea
ridged, and often resembling silver lace; tha
earths is frequently branched, and that among
in small roundish or oblong granules. Howe
though silver is often found thus native and p
it is likewise frequently met with in a state of
and sometimes embodied in the ores of other
tals.

The proper and peculiar ores of silver are
very various in their appearance, but its most
ore is a singular and remarkable body, being
rally malleable. The colour of this is a bla
blue, and it so nearly resembles lead that
have mistaken it for that metal in its native
It is found in large irregular masses, sometim
a laminated structure, extremely heavy, and
rich in metal, containing often three fourths of
silver; but among these are usually found
of a more debased nature, containing much
silver, and distinguished from the rest by this
being malleable and of a paler colour.

er appearance of silver in the state of
brownish masses, obscurely transparent,
ewhat resembling the coarser sorts of am-
hese are usually of an irregular shape, often
orm of common pebbles, but sometimes
nd with rugged edges. This sort of ore
eith a slight blow, and is also very rich in
usually containing near two thirds of its
n metal. But there is yet another appear-
silver-ore, superior to all other ores in
being a compact substance, of a regular
of a very bright red, a smooth even sur-
d considerably pellucid. This very much
es the native sandarach*, and is some-
xactly of the fine florid red of that body,
re frequently approaches to a crimson.
e are the more usual appearances of silver
tate of ore, but it is found with numberless
ital variations; and there are stones of all
and consistencies wrought in different places
silver they contain. In the mines of
ome of the ores, as they are called, are
otted with blue and red; others have vari-
ades of red, with mixtures of yellow or
; and others are black, green, or yellow.
of these are of the nature of one or other
res above described, only debased by ad-

easily wrought, and the silver they yield i
best quality. The veins of silver are
richer in the middle than towards the e
ties; but the richest places are those wh
veins intersect.

The most celebrated mines of Peru are
Potosi, which have now been opened nea
hundred and sixty years, and yet continu
wrought with equal advantage as when fir
vered; only with this difference, that the vein
were then almost on the surface of the m
are now sunk to prodigious depths, some
pits or wells being two hundred fathoms de
yet not incommoded with water. What
the working of the mines exceeding dange
the exhalations arising from them, which a
felt on the outside, and affect animals th
in the neighbourhood; but within they
the miners, none of whom can bear so
an air above a day together. Sometimes
fatal as to kill on the spot, and oblige them
up the veins from whence it exhales. Th
of Potosi are the least subject to these vapo
yet, without the herb paraguay, the
whereof is drank by the miners as we
these mines must soon be abandoned. So
lions of Indians have perished in them, a
digious numbers continue to be destroye
year.

The mountain of Potosi, which is fa
the immense quantity of silver it has p
was first discovered to contain that met
mere accident. An Indian, named Gual
suing some wild goats up this mountain, a
ing to a very steep part, laid hold of a s
order to ascend with the greater celeri

being unable to support his weight, came up by the roots, and discovered a mass of fine silver; and at the same time he found some lumps of the same metal among the clods which adhered to the roots. The Indian, who lived at Porco, hasted home, washed the silver, and made use of it, repairing, when his stock was exhausted, to his perpetual fund. At length, an intimate friend, perceiving the happy change in his circumstances, eagerly enquired the cause; and repeated his questions with such earnestness, that Gualca, confiding in his friendship, revealed the secret. For some time, they resorted to the mountain for fresh supplies, till, Gualca refusing to discover his method of purifying the metal, the other, in revenge, revealed the whole secret to his master who went, in April 1545, to view this fortunate breach in the mountain; and the mine was instantly worked with immense advantage. The first mine had the name of The Discoverer, from its occasioning the discovery of other sources of wealth enclosed in the bowels of this mountain; for, in a few days another was found no less rich, and was named the Tin mine; afterwards another was found and distinguished by the name of Rica, or Rich, as exceeding all the rest. At length, another was discovered, which was called the Mendieta. These are the principal mines of this celebrated mountain; but there are several smaller, crossing it in all directions.

The importance of these discoveries induced people to flock to Potosi from all parts, particularly from the city of Plata, which stands about seventy-five miles from the mountain, whence the town of Potosi is *at present* near six miles in circuit, and *inhabited by many* noble families, particularly those

concerned in the mines. The air at the n
tains is indeed so cold, as to render all the
cent country remarkably barren; for it pro
neither corn, fruit, nor herbs, and yet the
is so plentifully supplied, as to be in want o
thing, the trade for provisions being greater
than in any other place, Lima excepted.
provinces send the best of their corn and
others their cattle, others their manufact
while others resort thither with European g
as to a sure market. A Spanish author de
on the best authority, that, before the year
it appeared by the public accounts that the s
produced by this mountain, amounted to
hundred ninety-five millions six hundred
nineteen thousand dollars; which in ninety-
years, the time it had then been discov
amounted to forty-one millions two hundre
fifty-five thousand and forty-three dollars pe
num. Hence an idea may be formed of th
mense trade that has for many years been c
on in this town, which consists entirely
silver extracted from this mountain, and i
very considerable, though some diminutio
been perceived in its produce.

In the province of Carangas, which is rem
bly cold, there are many silver mines cons
worked; among which, one called Tur
remarkable for the ore named by miners M
cado, the fibres of the silver forming an adm
intertexture with the stones in which the
contained. Besides, in the barren, sandy de
extending towards the coast of the South se
found, by digging in the sand, detached lum
silver, unmixed with any ore or stone, but
adheres to the metal, they having all the w

of melted silver, with black terrene particles
e outside. The size and figure of these
s are very different, some weighing about
marks, or sixteen ounces, and some above a
red marks. These lumps of silver are found
ferent parts of the same ground, though sel-
near each other.

e manner of separating silver from its ore
early the same as in gold. They break
ore in the stamping-mill till it is reduced
wder, and then mix it up with mercury into
of paste, which they knead in the troughs
e water has by degrees washed away all the
y particles. After this they strain off part
mercury from it through a woollen bag to
again, and the rest is made to evaporate by
The silver that remains behind is, last of all,
ctly refined from all heterogeneous matter by
tion of lead, which, exhaling from it, carries
fumes the copper or other alloy.

other part of the riches of Peru are its
of quicksilver, which afford surprising quan-
of that useful mineral. Those of Guanca-
or Oropesa are the most famous, and are
considerable than the rich mines of Carni-
Europe, of which we have already given
count*. Frezier tells us that the mines of
avelica supply all the gold and silver mills in
ingdom; but this seems to be a mistake, since
mines are wrought which produce plenty of
silver. The earth containing the quicksilver
whitish red, like bricks half burnt, which
pounded is put in an earthen furnace, whose
vaulted like an oven. They spread it on a

* See Vol. II. page 147.

layer of common earth, wherewith the gra
the furnace is covered, under which they k
small fire made of the shrub *icho*, which
such necessity in these works, that the cu
it for any other use is prohibited for the
of twenty leagues round. In proportion a
pounded mineral heats, the mercury rises v
lized into smoke, and finding no vent thr
the capital of the furnace, which is exactly
it escapes through a hole made for that pur
communicating with several earthen cucu
each having a little water at the bottom.
means of this water the smoke is condensed,
the quicksilver precipitates, and is taken out
the operation is over.—It is remarkable in
process, that the farther the cucurbits are
the furnace, the more they are filled with q
silver; and they all grow so hot that they
break, if they were not occasionally spri
from time to time with water.—The workme
ployed in this business frequently become para
and fall victims to their unwholesome em
ment.

Having been so particular in our accou
the gold and silver of the south part of Am
it will not be expected we should say much
cerning the baser metals, especially as we
spoken of them sufficiently in Europe. It m
proper to observe however, that Chili ab
with copper, of which the Spaniards make
great guns for those parts of their dominions
bells of their churches, and family utensils; so
since the working of the mines of Chili, no c
has been sent from Spain, as they afford the
a sufficient supply of that metal.

As to precious stones, though we have

most of them in our description of India,
oper to observe, that Peru is noted for its
lds. The ancients indeed, and Pliny in
ular, mistakenly reckoned up various kinds
eralds, but the modern naturalists and jew-
only know of two, the Oriental and the
ian.

monds have lately been discovered in Brasil,
e found in the same manner as the Bra-
gold, in the gullies of torrents, and beds of
; but only in particular places, and they
t so universally spread through the country.
id that they were frequently found in wash-
e gold, before they were known to be dia-
; and were thrown away with the sand and
. It is still remembered, that many large
, that would have enriched the possessors,
unregarded through the hands of those who
ards bore with great impatience the mortify-
lection. However, about ninety years ago,
n acquainted with rough diamonds imagined
ese pebbles, as they were then thought,
of the same kind: but it is said there was a
erable interval between the first starting of
inion and its being confirmed by proper
the inhabitants being, with difficulty per-
to believe that what they had despised
be of such importance; and, during this
l, a governor is said to have procured a
mber of these stones, under the pretence
ing use of them in playing at cards, instead

Immediately the Portuguese, in the neighbourhood
of the places where they had been found, began
search for them, with great eagerness; and ev
hoped to discover considerable masses of the
from their perceiving large rocks of crystal in m
of the mountains, from whence came the stre
that washed down the diamonds. It was
however, represented to his Portuguese maj
that, if such plenty of diamonds, as was expe
should be found, this would not only de
their value, and ruin all the Europeans wh
a quantity of India diamonds in their posse
but render the discovery of no importance.
king, therefore, restrained the general
for them, by erecting a diamond company
an exclusive charter, who, in considera
their paying his majesty a certain sum
the property of all the diamonds found
sil: but, to prevent their collecting t
quantities, and thereby reducing their val
are prohibited from employing above eight
slaves, in searching for them. And, to s
company from being defrauded by interl
depopulated a large town in its neigh
with a considerable district round it; a
who were said to amo

heated febrifuge, popularly called Jesuits bark. It is also called quinquina, and palo de calenturas, or fever-wood, on account of its extraordinary virtue in removing all kinds of intermitting fevers and agues. The tree which produces this noble specific grows only in the interior parts of Peru, on the mountains near Loxa, in the province of Quito; at least the best sort (for there are different species of this tree) is no where else to be found, according to the account of Mr. Arrot. It is a pretty tall tree, and has a trunk rather bigger than a man's thigh, tapering from the root upwards, and free from branches till near the top, where they shoot out as regularly as if they were lopped, forming with the leaves the figure of a hemisphere. The bark is of a blackish colour on the outside, and sometimes mixed with white spots, from whence commonly grows a kind of moss, which the Spaniards call barbas. Its leaves are much like those of our plum-tree, of a darkish-green colour on the upper side, and reddish on the lower. It bears a red flower, which is succeeded by a sort of pod, enclosing a seed somewhat like a hop-seed; though Dr. Oliver represents its fruit as resembling a chesnut. The soil where the best sort thrives is generally a reddish earth or rocky ground, and frequently on the banks of the rivulets that fall from the mountains. Mr. Arrot adds, that it flourishes and bears fruit at the same time all the year round.

The bark-trees do not grow together in great numbers, but are intermixed with others in the woods. Sometimes indeed it happens that clusters of them are found together, but at present they are much scarcer than formerly, a great many

fine large ones having been entirely cu
in order to come at the bark the more
The properest season for cutting the bark
September to November, the only time
year that there is some intermission from
the mountains. Having discovered a spo
the trees most abound, the workmen bu
near it for themselves, and a large hut to
bark in, to preserve it from the wet: h
remove it from hence as soon as possible
nearest plantation or farm-house in the lo
try to dry, which is done by spreading it
in the open air, and turning it frequently
The Indians, who are the cutters, are e
vided with a large knife, and a bag that v
about fifty pounds of green bark. Two
take one tree, from whence they cut d
bark as far as they can reach from the
and then taking sticks about half a ya
they tie them to the tree with tough wi
proper distances like the steps of a ladder
slicing off the bark as far as they can re
fore they fix a new step. Thus they n
the top, the Indian below gathering w
other cuts; and this they do by turns, go
tree to tree, till their bag is full; whic
there is plenty of trees, is generally a da
for one Indian. Our author tells us, tha
tree is stripped of its bark, it requires eig
twenty years to grow again; which is c
ferent from Dr. Oliver's account, who
grows again in four months *.

* Dr. Oliver had his account of the bark-tre
apothecary at Cadiz, who had been in Peru
Ant relates what he himself had observed
whilst he lived in that country. Who is mo
dited, therefore we leave to the reader's jud

Arrot had the curiosity to send a consider-
antity of bark from the woods to the city
, where he put it into a large open house,
ed it under cover, never exposing it either
sun or night air; imagining that the
aled many of its fine parts, and that the
ir was very pernicious to it: but he found
ur of the bark, thus cured, not near so
nd lively as that dried in the open air.
est sort of bark, he imagines, will last
ort time, or at least it will be extremely
be got, by reason of its distance from in-
places, the impenetrability of the woods
t grows, and the small number of Indians
.

not certain how the qualities and use of
narkable bark came first to be known, but
common opinion at Loxa that they were
to the Indians before ever the Spaniards
mongst them; and that it was by them
in the cure of intermitting fevers, which
quent in those wet parts of Peru. Accord-
the account of the Spaniards, however,
ues of the Peruvian bark were discovered
following manner. Near the town of Loxa
ey) was a lake surrounded with quinquina-
which, being blown down or accidentally
into the lake, communicated a bitter
the water, so that the inhabitants, who
drink it, could use it no longer. But a
Indian, who had a violent fever upon him,
nsequently an intense thirst, finding no
ater, was forced to drink of this, by which
perfectly cured. He related this accident
e of his neighbours, and several persons
l with fevers made the same experiment

with similar success. Hereupon they set
selves to discover what had given this febri
quality to the water of the lake; and found
first place that a great number of trees had
into it; and, secondly, that in a course of
these trees being rotted in the water, it lost
ter taste, and at the same time its virtue; w
they concluded, that its quality was ow
the trees. Then they infused all the parts o
trees in water, and found that their whole e
resided in the bark.

This medicine, however, remained a sec
the Spaniards, till the year 1640, when it w
covered by a soldier, who by its means h
good fortune to cure the vice-queen of Per
intermitting fever, which had baffled the
her physicians. From this time the Spania
gan to use it with wonderful success; and ir
father de Lugo, a Jesuit, then procurator g
of his order, and afterwards cardinal, brou
to Rome; upon which the society of Jesui
raised its reputation in Europe, and got a
deal of money in a short time, selling it fo
than its weight in gold, and never partin
it but in powder, in order to disguise it t
ter. At this juncture the physicians were
ed with respect to the Peruvian bark, som
ing on it as a most valuable medicine,
others believed it dangerous, and even
many cases; but its reputation was o
through the ignorance of the manner of pr
and prescribing it; for, about the year 16
Talbot, an English physician, brought
vogue, by the great number of cures he
about the court and city of Paris, with th
der prepared after his manner; the secret

afterwards made public, by the munificence
...is XIV. who rewarded Talbot for the com-
...ication with five thousand crowns.
The reputation indeed, which this medicine
universally obtained, has been chiefly owing
...he judicious and successful experiments made
the English physicians: but it still has its
...mies, who pretend that it brings on violent
...psies, or new and incurable diseases; such as
...ours of the feet, dropsies, obstinate costive-
...s, hypochondriac and hysteric disorders, slow
...l hectic fevers, accompanied with a loss of
...ength and appetite, and sometimes convul-
...ns and epilepsies in children. But it is cer-
...n that the Peruvian bark, exhibited duly and
conjunction with other suitable remedies, has
...endency to remove the causes of fevers by
...moting perspiration, and restoring the due
...e of the solids.
It ought never to be given in large quantities,
rather at several times, one or two scruples
...y on the intercalary day, every three hours
...r the fit, drinking after it a sufficient quantity
water, broth, or beer. Besides the peculiar
...rifuge quality of the bark, it is of peculiar ser-
...e in stopping the progress and perfecting the
...e of gangrenes and mortifications.
This noble medicine is sold either in bark or
powder. If bought in the bark, it must be
...en dry and compact, such as has never been
...maged by wet, and is not too easily reduced
...o powder by breaking. The small blackish
...ks, shagreened without, and reddish within,
a bitter disagreeable taste, are the most
...eemed. But the little sort, which curls up
...e sticks of cinnamon, and is supposed to be

led off the branches, Mr. Arrot tells us is
y the bark of the younger trees, which twists
in that manner on account of its thinness; for
says the bark of the branches would not an-
ver the trouble and expence of cutting.---As
the powder, it ought to be well sifted, and
ought of persons that may be trusted, it being
ften sophisticated, and the imposition not readily
liscovered.

There is another bark called Winter's bark,
or Winter's cinnamon, because brought by cap-
tain Winter from the Straits of Magellan, where
the tree grows in great abundance: but it is to
be observed, that the wild cinnamon sold in the
shops is not the true Cortex Winteranus, though
passed off under that name. There are barks of
different trees, growing in very distant places, by
outward appearance seeming quite different from
each other, and even alike with regard to taste
so that they may be used as a succedaneum to eac
other: but the true Winter's bark is much to b
valued beyond the false, which is generally so
in shops, being far more aromatic. It is res
vent, discutient, and sub-astringent; on whi
account it is successfully administered in disord
of the stomach, nauseas, diarrhœas, and excess
vomitings. To strengthen the stomach, i
likewise used in the declension and at the en
intermitting fevers; and it is reckoned benef
to scorbutic patients.

We ought not to omit another excellent
growing plentifully in Brasil and Peru, na
sarsaparilla, which began to be much celeb
about the same time with the China root,
pears from an epistle of Vesalius. The r
vides itself into a great number of filamen

ven feet long, brownish without, and white
n, only marked with two red streaks; and
anches creep along the ground, or up the
s of other trees like ivy. It is prepared by
g two ounces of the root into small bits,
nacerating them a whole day in six pints of
r; which are afterwards to be boiled over a
e fire in a double vessel well closed with a
ll one third or one half be evaporated. Of
ecoction the patient is to take a glass that
old ten ounces, very early in bed; and the
e is to be continued for twenty or four and
ty days.

the southern parts of America we find
al trees which furnish us with healing me-
es, particularly the Peruvian balsam. Of
here are two kinds, the white and the black;
he former is accounted best, and is by way
minence called balsam of incision, because
ng from a large tree upon making incisions
bark. This species is limpid, of the con-
ce of turpentine, of a fragrant smell, and
scarcer and dearer than the black sort;
t is frequently adulterated with Venice
ntine. We have large quantities of the
sort imported, which is prepared by
g the branches, bark, and leaves of the
but this is likewise often adulterated,
however may be known by its being thick
coagulated, and wanting its penetrating
and smell. The true balsam of Peru,
ed internally, restores impaired strength,
eing very friendly to the nervous system,
fully contributes to remove the disorders
g from its weakness. The black Peruvian
, according to Geoffry, is also of a

warming and strengthening nature, comforti
the brain and nerves; and it is benefical in as
mas, the cholic, and pains of the stomach a
intestines. Used externally, it alleviates t
cramp, relieves all kinds of convulsions, old pai
and contractions in the sinews. In cuts a
green wounds it is also very serviceable.

The balsam of Capivi is produced from a t
growing in Brasil, and brought to us from R
de Janeiro and other places in earthen vesse
There are two sorts of it, the one very limp
the other pretty thick, but the difference deper
upon the different seasons of gathering it. He
man esteems the limpid kind both for internal a
external purposes, it being an excellent linim
for the consolidation of wounds and ulcers, a
for strengthening the nervous parts after they ha
been weakened by any disease. It is also ber
ficial when applied to parts that have been affect
with the gout, and thereby rendered unfit
motion.

To these we may add the balsam of Tolu, t
produce of a tree growing in Terra Firma, o
tough resinous consistence, of a yellowish colo
of a highly fragrant smell, and aromatic tas
This is an excellent pectoral medicine, and con
quently of great service in all disorders of t
lungs, as coughs, asthmas, and consumptio
and what renders it still more valuable is, tha
has no nauseous oily taste, which is the case
most other native balsams. With sugar and
yolk of an egg it makes an agreeable emulsio
and it is reckoned restorative if taken inward
and deterges and consolidates wounds if appl
externally. It strengthens the nerves, and
good against a rheumatism and sciatica. In ta

mell it resembles the balm of Gilead, and, grows old, it becomes friable, and assumes nsistence of a dry balsam.

e grenadilla resembles, in shape, a hen's egg, larger. The outside of the shell is smooth, , and of a faint carnation colour; and the whjte and soft; the shell containing a s liquid substance, full of very small and te grains, less hard than those of the pome- te, and is separated from the shell by a fine arent membrane. This fruit has a delightful ness, blended with acidity, very cordial and hing, and so wholesome, that the indulgence e's appetite is not attended with the least er.

e chirimoya is universally allowed to be one e most delicious fruits in the world. Its di- ions are various, being from one to five s in diameter. Its figure is imperfectly round, flatted towards the stalk, where it forms d of navel; but all the other parts are nearly ar. It is covered with a thin soft shell, dheres so closely to the pulp, as not to be ated from it without a knife. The outward is green, variegated with prominent veins, ng all over it a kind of net-work. The pulp is white, contains a large quantity of juice, bling honey, of a sweet taste, mixed with a e acid, of a most exquisite flavour. The are formed in several parts of the pulp, are somewhat flat. The tree is high and l, the stem large and round, but with some alities, and is full of elliptic leaves, terminat- a point. The blossom is nearly of the same r as the leaves, which is a darkish green; and, h far from being beautiful, is remarkable for

its incomparable fragrance; whence these flo
are so much admired by the ladies that they
chase them at any price. The two fruits
mentioned are the produce of Quito, in Peru.

The cuca is an herb so highly esteeme
the Indians in some provinces of Peru, that
would part with any kind of provisions, the
valuable metals, gems, or any thing else, to o
it. It grows on a weak stem, which suppor
self by twisting round another stronger veget
and its leaf, which is about an inch and a
or two inches in length, is extremely sm
The Indians make use of it for chewing,
ing it with a kind of chalk, or whitish earth c
mambi. They put into their mouths a few l
of cuca, and a proper quantity of mambi;
chewing them together, at first spit out the s
but afterwards swallow it. This herb is so r
tive and invigorating, that they labour whole
without any thing else; and, on the want
find a decay in their strength: it also pres
the teeth sound, and fortifies the stor
Great quantities of this herb are cultivated b
Indians in the southern provinces of Peru, a
makes no small article of trade; a great
of it being carried to the mine-towns, tha
owners of the mines may furnish the Indians
it, who otherwise could not be brough
work, or would not have strength t
through it. This plant is doubtless the same
the betel of the East Indies, where it is use
the same manner.

In the most southern parts of Popayan are
tain trees, which yield a resin called mopa-r
of which is made a varnish, which is not onl
extremely beautiful, but will bear boiling water

acids. The method of applying it is to dis-
some of the resin in one's mouth, and then
the pencil with it: afterwards, it is dipped in
olour to be laid on; and when dried has all
ustre of the Chinese lac; but with this supe-
quality, that it never wears off, nor becomes
, though rubbed with spittle. Hence the
s, tables, and other furniture, made by the
ns of this country, are carried to Quito,
re they are highly valued.

here is still to be mentioned a very cele-
ed plant of the shrub kind growing in some
s of South America, especially Paraguay, by
h name it is called, though better known
gst us under the denomination of South-sea
Its usual height is about a foot and a half,
ranches are very slender, and its leaves like
e of senna. It may be looked upon indeed as a
of Occidental tea, which, like the Oriental,
fused in hot water, and communicates to it
lour and smell nearly like those of the best
brought from the East Indies. Of this plant,
are two kinds, the one called paraguay,
ther cumini, which last is most esteemed,
sold for a third more than the other. The
is chiefly used by domestics and slaves, but
tter is the drink of the richest people; and
are of so much use, and esteemed of such
ssity, that no-body in that part of America
live without them. In the mines of Potosi (as
ave already observed) the poor slaves could
ive without a constant supply of paraguay,
h is their remedy against the mineral steams,
otherwise would suffocate them: and it is
that no servant will engage himself with a
er but on condition that he have paraguay

ucn is esteemed the best, and it is to be
nick pieces, close, sound, and such as
eel tastes something like sugar. It
d polish, and is much used in turned
more frequently in dying, as it gives a
though not very lasting. In medicine
mitigate the heat of fevers, and is
ng and restringent.

ore productions of the vegetable kind
of the world are very remarkable, par-
arge prickly shrub, as thick as a man's
owing to the height of ten or twelve
bearing neither leaf nor fruit.—The
a tall strait-bodied tree, without knots
sixty or seventy feet, but afterwards
into several small branches, growing
close together. Its bark is of a dark
, thick and rough; its fruit bigger than
ound, and covered with a thick rind.
fruit is ripe, the rind is yellow, and will
e leather, but before it is brittle. Un-
d the pulp is also yellow, and in the
two large stones, flattish, and each
ch bigger than an almond. The fruit
, and the taste is not disagreeable.

Firma there are several sorts of man-
, which we think it proper to notice,
e we have mentioned in Africa. They
ed and white, the first of which is larg-
s big as many of our oaks, and to the
bout twenty feet very serviceable tim-
traordinarily heavy, and therefore not
d in building.—The red mangrove
monly by the sea-side, or by creeks and
proceeds from several roots, which,
or ten feet from the ground, join into

one trunk or body, so that the tree seems to be
ported by so many artificial stakes. The insi
the bark is red, and is much used in the Wes
dies for tanning of leather.—The white mang
does not grow so large as the other sort, nor is
any great use.

The cacao or chocolate nut-tree, is found i
veral parts of the West Indies, but no whe
plentifully as on the coast of the Carracas. This
nearly resembles our dwarf apple-tree both in
and branches; but the leaf which is of a
green, is considerably broader and longer.
nuts, which are of the colour and about the si
an almond, hang fifteen or sixteen together
small stringy filai, enclosed in a pod shaped li
large cucumber, and pointed at the upper
When the pod is ripe, it is of a beautiful ye
colour, intermixed with red streaks; but
dried it shrivels up, and turns to a deep br
Others tell us that each pod contains from tw
to thirty nuts, and that a thriving tree gene
yields from two to eight pounds of nuts in a y
which, when ripe, are cut down and laid in h
to sweat for three or four days in the pods,
taken out, covered with plantain leaves, an
left to sweat a fortnight or three weeks lo
After this they are dried three or four wee
the sun, and then become of a reddish colour.

This tree is difficult to cultivate, and a pla
is planted by every cacao-tree, because it del
in shade. They begin to bear at three, four
five years old, and come to perfection in fi
years; but frequently die before that time.
are, however, the most profitable trees in the w
for some of the Spaniards are said to make
thousand pounds sterling per annum, from

plantation of cacaos; and an acre of them
naica (from whence we receive more nuts,
rom all the rest of our plantations) has clear-
ve two hundred pounds in a year. In some
of America, the nuts are used by the natives
ney, twelve or fourteen being esteemed equi-
to a Spanish real, or about seven-pence ster-

what renders the cacao-nut most famous is
ing the principal ingredient in chocolate, a
ous substance first brought from America into
e by the Spaniards about the beginning of the
teenth century. Some dissolve this substance
ter, others in milk, and others in wine; but
seems to be the best vehicle for it, as the most
r to distribute its nutritive parts, and to pro-
digestion. The composition of chocolate makes
ely proper for persons of cold constitutions,
d people, for those who have their strength
red by repeated watchings, and for those
travel in cold mornings. As it is of an oily
nacious nature, Dr. Cheyne, in his Essay on
th, thinks it should not be used by the weak
nfirm, either as an aliment or a medicine;
e grants that it may produce all the effects of a
ry food in vigorous and strong constitutions.
confirmed by the experience of many physi-
, that in hectic, scorbutic, and catarrhous dis-
s, chocolate is a wonderful remedy, having
ght a cure when all other means have proved
ctual: And Hoffman affirms, that chocolate
ared with water, contributes much to the cure
elancholic disorders, arising from too weak
lax a state of the nerves, especially if we add
a few drops of essence of amber. Dr. Stubbs,
e Philosophical Transactions, affirms, that

well-prepared chocolate is an excellent diet f
those who are scorbutic, or afflicted with arthrit
pains, and yet some of the best physicians have ol
served that drinking chocolate to excess contribut
to the formation of stones, especially in the ga
bladder. It is agreed, however, that a man
perfect health may drink as much chocolate as
pleases, provided he finds himself refreshed, a
his stomach not overloaded. In hot and sanguin
constitutions the immoderate use of this liquor, b
inspissating the blood and rendering it less fit f
circulation, produces inflammations of the viscer
fevers and apoplexies. On account of the qua
tity of sugar that enters the composition of choc
late, it ought to be avoided by those who are sul
ject to hypochondriac flatulencies; and the disa
vantages arising from the immoderate use of th
drink, prepared with warm water, are plain
every one who reflects, that the frequent use
warm water relaxes the organs of digestion, a
the solids in general, and must consequently pro
pernicious.

The method of making chocolate, now used b
the Spaniards in America, is first to dry the fruit
the sun, then to take out the kernels and roa
them at the fire in an iron pan pierced full of hole
and afterwards grind them on a marble-stone, t
they are brought to the consistence of a past
mixing with them a quantity of sugar, some lo
pepper, and vanelloes, a little black seed, th
gives the chocolate an agreeable flavour. Son
add cinnamon, cloves, and anise, and even mu
and ambergrise, if they love perfumes.—What
made in Spain differs something from that made
the West-Indies, two or three kinds of flowers b
ing added, besides hazel-nuts and almonds; a

they frequently work their paste with orange-water, which they think gives it a greater firmness and consistence. Sometimes the cakes are made up of the nut without any mixture, those that use it being left to add what quantity they please of sugar, cinnamon, &c. And this plain method is usually followed in England, except that sometimes sugar and sometimes vanellos are added, scarce any other ingredients being known amongst us.—It is said that in New Spain there is such a quantity of chocolate made as to use annually twelve million pounds of sugar.

Here is a species of canes or reeds remarkable for their length, their thickness, and the water contained in their tubes. They are usually between twelve and sixteen yards long; and, though there is some difference in their size, the largest are not above six inches in diameter. The wood or side of the tube is about half an inch in thickness, so that, when the cane is split and opened, it is made to form a board near a foot and a half in breadth. From the time of their first appearance, till they attain their full perfection, many of the tubes contain a quantity of water: and, what is very remarkable, at full moon, they are very nearly full; and with the decrease of the moon, the water ebbs. During the decrease, it appears turbid, and at the full is as clear as crystal. Yet the water is not found in all the joints, one having water, and others not, alternately. These canes, which are found, not only in South America, but in the West Indies, are an admirable proof of the indulgent care of Providence, by furnishing the traveller, in those hot countries, when fainting with heat, and at a distance from springs, or when they are dried up by the excessive heat, with a refresh-

motley brown and olive colour. It has a navel and paps on the breast, feeds chiefly on fruit, and will sit and support itself by a stick in one hand and drink out of a cup held in the other. It has two long tusks in the upper jaw, has no tail, and is a very fierce and lascivious animal.

The cuandu of Brasil, according to Dr. Tyson is a sort of porcupine, described by Margrave and Nieuhoff, which has but four toes on the fore-feet and five on the hinder ones; so that, for want of what may be called the thumb, it is but slow in climbing trees; but has a way of twisting its tail about a bough, and thereby frequently saves itself from falling.—The tamandua, another animal of Brasil, has only four toes before, but five behind, and also makes use of its tail in climbing.

The coati mondi of Brasil is represented variously by different writers, but is usually said to have a snout about a foot long, small eyes like a pig, round ears like a rat, and hands like those of a monkey. Its hair is short, rough, and of a blackish colour on the back, the rest of the body having a mixture of black and red. This animal is ranked by Dr. Tyson among the number of those he chuses rather to call four-handed than four-footed, of which some have no thumb on the fore-feet, and others none on the hinder ones. Of the former sort he reckons the vantrevan, which is a very beautiful creature, has a long tail, and is very brisk and nimble.

The sloth is a very remarkable animal; its body is short, its head small, and its fur long, thick, and of a greyish green; so that, when seen on the bough of a tree, it appears only like an excrescence or cluster of moss. It is about the size of a cat; but its legs and neck are short, and its long thick covering renders it so shapeless, that it seems only

an irregular lump of living matter. Its little head, which is remarkably ugly, stands between its shoulders. The face has some resemblance to that of a monkey, but its small heavy eyes are always half closed, and it has no external ears. Its feet are flat and very narrow, but armed with sharp claws for striking deep into the bark of trees.

This animal never changes its place but when compelled by necessity. As upon the ground it would be a prey to every other animal, its constant residence is on a tree, where it is safe from all animals, but those that climb the trees in quest of birds. Leaves and tender branches are its food, and serve it both for meat and drink. It never moves to another branch, till it has devoured all the nourishment upon that where it is stationed, nor from one to another till the first is wholly wasted. It is remarkable that the sloth always ascends to the top of a tree, only baiting as he goes, before he begins his devastations; for, was it to begin eating upwards, when it had devoured all, it would be half starved in climbing down from the top of a dead tree. But this is not all. The havock which one sloth makes on the largest tree, is easily seen, for he eats not only the leaves, but all the buds and bark, leaving only a dead branch; so that, unless the same thing might happen by accident, this would betray him. However, it does so happen, for trees always die at the top first, and so gradually downward. Thus this animal is wonderfully taught; as he feeds the tree decays; but its decay is in the course of nature. The decay spreads downward, and, when he has eaten the last of his provision, he is near the ground, and has only to walk to another tree; but if it be at any distance,

his motion is so slow, that he grows quite lean in the expedition.

As the female brings forth her young in the hollow of a tree, she is led by the same wonderful instinct to conduct them to the uppermost branches, as soon as they can crawl out. When she is pregnant, she climbs some old hollow tree, and having fixed on a convenient spot ascends to the very highest bough, and there feeds faster than usual. When she is full, she descends with unaccustomed haste, and brings forth one, two, or three young ones; which she is to support with her milk till they can crawl out, without having any supply herself. When she retires for this purpose, she is round and fleshy, but a mere skeleton when she comes out. She crawls however as well as she can, followed by her young, to the part where she left off feeding; nor will she feed by th way, however prompted by hunger and ind lence.

The sloth is the most timorous of all creatur and with reason, for it can neither fight nor While it is on its little journey on the ground, tread of a human foot seems to strike it with terr it trembles, the head is turned about every w and the mouth is open to cry like a young kit Insignificant as this creature appears, says an i nious author, there is a special providence vi displayed in its form and preservation. No signed for walking, its claws enable it to cl helpless as it is, the universal Provider has a ed it a place of safety, where it finds plenty of and, as it cannot easily seek for drink, it d of any. To render it the less obnox uit, its colour secures it even from vie

its amazing instinct of feeding, from the top to the bottom of the tree, proves a designing and directing hand.

The opossum, which is a native of Brasil and other parts of America, is a very remarkable animal, in shape and size like a badger, but of a lighter colour, and with a longer tail. What is most wonderful, in this creature, is the bag or purse in the skin of its belly, to which its young ones retire and hide themselves in case of danger. In the male opossum however this pouch is not discernible, only the skin in that place, according to Dr. Tyson's observation, seemed to be looser, so that he could thrust it in with his finger, and by turning it round form a sort of bag, but, on withdrawing his finger, it returned to it's former position: and for this reason the doctor leaves it as an uncertain point, to be determined by those who live where these animals are bred, whether this part of the skin is capable of being formed upon occasion into a pouch, and whether they ever observe the male opossum to receive the young as the female does.

Perhaps the reader may not be displeased if we are a little more particular in our account of an animal so remarkable, which we shall chiefly take from the gentleman already cited, and Mr. Cowper, who have both published their anatomical observations on the opossum in the Philosophical Transactions. That which Dr. Tyson dissected, measured two feet seven inches from the extremity of the nose to the tip of the tail, the length of the head was six inches, that of the tail twelve, and the circumference of the body fifteen inches and a half when dead, but, when alive and well, it seemed much thicker. Its fore legs were six inch

long, the hinder ones only four and a half, and the tail near the root was three inches in compass. The apertures of the eye-lids were not horizontal but lying in a straight line from the eyes to the nose. The ears were not sharp, but of a roundish figure and about an inch and a half in length, which was almost the dimension of the mouth when opened, from one corner to the extremity of the nose. The hinder feet had four fingers armed with long crooked nails, and a perfect thumb, set off at a distance from the range of the other fingers, as in a human creature; and the fore feet had five long claws or fingers, equally ranged with each other, and a hooked nail at the end of each finger.

This formation of the legs, feet, and nails, seems very advantageous to the animal in climbing up trees, which it does very nimbly in pursuit of birds a prey it is extremely fond of, though they do not constitute its only food. These fingers and claws are naked, and without hair, the skin being of a reddish colour. The palms, if dilated, are large but so contrived as to be capable of contraction which is likewise the case in its walking; and that the palms might be the better defended from injury, at the setting on of each toe there is in the palms a protuberant, fleshy, and almost cartilaginous body. In feeding it makes use of its fore feet to bring the food to its mouth, like a monkey or squirrel. The tail is naked except for a little way near the root, from whence it tapers to the extremity, and is covered with a regular order of small whitish scales, which for the most part are of an oblong hexagonal figure. Between each there is observable a small skin or membrane, to which they are fixed, and which is of a dark

colour. The ears of this creature are without hair, and, though soft and slender, and in colour and substance almost resembling the wings of a bat, they are erect, and of an oval figure. The upper jaw is somewhat longer than the under, the eyes small, black, vivid, and exerted when alive, but very much sunk when dead: the neck is short, the breast broad, and it has whiskers like those of a cat. On the back and sides this animal is of an ash-colour, or dappled with black hairs in spots intermixed with white; but its belly is more of an amber colour.

Under the belly between the two hinder legs, is an aperture, about two inches long, but capable of greater extension, by dilating it with the fingers; and this the animal can so exactly close and contract, that the eye does not readily discern it. On each side of it there is a reduplication of the skin inwards, which forms a hairy bag, though the hairs are very thinly set, so that the skin is almost every where to be discovered. This is the bag or purse, already spoken of, which all authors agree is intended to preserve the animal's young, and secure them against danger; and the contrivance of nature in forming and adapting this part to that end is admirable, there being two strong bones, not to be met with in any other skeleton, which have no motion nearer or farther from each other, but stand always at an equal distance; and these bones are furnished with four pair of muscles, over which runs another pair, which perform the office of a pulley. In the male opossum, which Mr. Cowper dissected, the bag was not perceptible, nor the muscles belonging to it; but that gentleman, as well as Dr. Tyson, observed the bones just mentioned, and muscles running from

them to the hinder legs, which are undoub
serviceable to the creature in drawing up its
This bag, the doctor found, is a membranous
not very thick, though consisting of several
which perform the office of motion and secr
for the cavity of the pouch is somewhat hair
our author observed the hairs matted togethe
yellowish substance, which oozed out of the
neous glands. This liquor, discharged int
pouch from the glandulous coat, was of a
smell, and had more of the peculiar fœtor
animal than any part besides; but, after the
together with the pouch, had been kept for
days, and was grown dry, there was so gre
alteration in the smell, that what was before
disagreeable, now became a perfect perfume
actly resembling the smell of musk. In this
most authors place the mammæ or teats, bu
Tyson found none, nor even on the outward
as is usual in other multiparous animals; thou
imagines that the opossum, which he diss
might never have had a litter, and for that r
the teats might escape his notice.

The opossum, being a carnivorous anima
particularly fond of birds, is endued by
with a faculty of twisting its tail about a
branch of a tree, and thereby stretching itse
to rob a nest, or obtain its desired food: na
this means it may be said to fly; for hanging
by the tail, and swinging its body too and
can fling itself into a neighbouring tree,
its tail is sure to fasten on the first bough it
with, if it otherwise misses its footing; an
hinder feet being made like hands, and furn
with a thumb, it thereby the more readily
its body.

We come now to an animal of such magni-
e and strength, as, if not attested by authors
unquestionable veracity, we should not have
tured to describe. This is the condor of Peru,
ch Sir Hans Sloane (from the account of cap-
Strong, commander of a South-Sea ship) has
en notice of in the Philosophical Transactions.
is is an animal of the feathered race, and of such
amazing bigness, that the captain's men, who
one and measured it, found it was sixteen feet
n the extremity of one wing to the other.
e of its feathers was two feet four inches
, the quill-part near six inches, its weight
e drams and above seventeen grains, and was
cave on one side and convex on the other. The
nen shot it as it sat on a cliff by the sea-side,
ate it, taking it for a species of turkey. They
e told by the Spaniards that they were afraid
ese birds, lest they should prey upon or injure
r children.

o this account we may add the testimony
Acosta and Garcilasso de la Vega, who
that the fowls called condors by the Spa-
ds measure fifteen or sixteen feet from the
of one wing to the other; and that their
k is strong enough to tear off the hide or rip
n the bowels of an ox. Two of them will
ck a cow or bull, and devour him; and
s sometimes happened that one of them has
ulted and eaten boys of ten or twelve years of
. But it is observed, that nature, to temper
allay their fierceness, has denied them the
ns which are given to the eagle, their feet being
ed with claws like a hen. They are black and
te, like a magpye, and on the fore part of their
d have a comb not pointed like that of a cock,

but rather even, in the form of a razor. B very well, says our author, there are but few them, otherwise they would commit great predations among the cattle *.

De Ulloa observes, that the condor resemb in its colours and appearance the gallinazo, sometimes soars from the highest mountains, so to be almost out of sight. As it is seldom seen low places, a subtile air seems best to agree w it; though some that have been tamed when yo live in the villages and plantations. They carnivorous, and are frequently known to away with the lambs that feed on the he upon the sides of the mountains. This our au confirms from his own observation; for, see on a hill adjoining to one on which he st a flock of sheep in great confusion, he perceiv a condor flying upwards from them, with a l in its claws. When at some height he drop it; but, following it, took it up, and let it fa second time, and then winged his way out of sl for fear of the Indians, who, at the cry of the l and barking of the dogs, were running tow the place. This bird is frequently seen on mountains; and, as it preys on the flocks, Indians exert their utmost endeavours to cate One of these ways is killing an old cow, or s other beast, and rubbing the flesh with the j

* Dr. Derham observes, that creatures less useful, their voracity pernicious, have commonly fewer yo or seldomer bring forth; of which many instances m be given in voracious beasts and birds, but there is (says he) very peculiar, which is the condor of Pe most pernicious bird, and therefore very rare, being seldom seen, and only just enough of them to keep up species, but not to overcharge the world.

ne potent herbs, which they afterwards
away; otherwise the bird would not touch
sh; and, to take off the smell, they bury the
ill it becomes putrid, and then expose it;
the condors allured by the smell of the car-
ly to it, and feed greedily; till, the herbs
ting, they become senseless and incapable of
; when the Indians seizing the opportunity,
y them. They likewise catch them with
s, laid near some flesh; but such is the
th of this bird, that sometimes, with the
of its wing, it knocks down the man who
nches it. Their wing also serves the condors
hield, by which they ward off blows, with-
ceiving any visible hurt.

e gallinazo is about the size of a pea-hen,
he head and neck are somewhat larger.
the crop to the base of the bill, it has, in-
of feathers, a wrinkled, glandulous skin,
ed with small warts and tubercles. Its
rs are black, as is also its skin: its bill is
proportioned, strong, and a little crooked.
e birds are so numerous and tame, that, in the
f Carthagena, it is not uncommon to see the
s of the houses covered with them; and they
so quick a scent, that they are said to smell
case at the distance of ten or twelve miles,
ever leave it till they have entirely reduced
skeleton. Though their legs are strong and
proportioned, they hop along on the ground,
very awkward manner; for they have the toes
ard, turning inwards, and one in the inside
ng a little backwards; so that the feet in-
e, which occasions their walking so badly.
toe has long and thick claws. At their first
they fly heavily, but soon after dart out of

sight. These birds are of great service, on ac
of their picking up all kinds of filth, greedily
devouring any dead animal, the eggs of the alli
and whatever is most offensive: hence their
destroy, in such hot climates, is a merciful
provision of Providence, as otherwise the p
lation, caused by the excessive heat, would r
the air extremely insalubrious.

There is another species of these birds, s
what larger than the former. In some of t
the head, and part of the neck, are white; in
red, and in others a mixture of both these co
At a small distance from the crop, they ha
ruff of white feathers, and are equally herce
carnivorous with the former. These are
the kings of the gallinazoes, being few in
ber, and it being observed, that, when
of them has fastened on a dead beast, none o
other approach, till he has first eaten the
which is generally the part he begins with
and is gone to another place, when they all
to the prey.

In Brasil we find a great number of cu
birds, particularly the anhima, or unicorn
so called because it has a horn two or three i
long, growing out of his forehead, but blunt
brittle, and therefore of no defence to the cre

One of the most extraordinary birds of
America, however, seems to be the tulca
preacher, which is of the size of a pigeon, b
much longer legs; its tail is short, and its plu
dark, spotted with blue, purple, yellow, and
colours, that have a very beautiful effect.
head greatly exceeds all proportion, with re
to its body; but this is necessary to e
it to support its bill, which is no less than

eight inches from the root to the point: the lower mandible closes with the upper through the whole length, and both diminish insensibly to the end, when it suddenly bends and terminates in a strong, sharp point. The tongue is formed like a feather and, as well as the inside of its mouth, is of a deep red. The bill is variegated with all the bright colours that adorn the plumage of other birds: at the base, and also at the convexity, it is generally of a light yellow, forming a kind of riband, half an inch broad; and the rest is of a fine deep purple, except two streaks near the root, of a rich scarlet. The name of preacher, has been given to this bird, from its being accustomed to perch on the top of a tree, above the other birds, while they are asleep, and making a noise, like ill-articulated sounds, moving his head to the right and left, in order to keep off the birds of prey from seizing the others. They are easily rendered so tame, as to run about the house, and come when called. Their usual food is fruit; but the tame eat other things, and, in general, whatever is given them.

Another bird of Brasil is called the cocoi, which is shaped much like our storks, and has a most curious variety of colours on its feathers.—The guara, which the Europeans call the sea-curlew, is surprising for its often changing its colour, being first black, then ash-coloured, next white, afterwards scarlet, and lastly crimson, which grows deeper and richer the longer the bird lives.

Parrots, parrokeets, and various birds of the same species are there as common as we have pigeons; and though some of them are most beautifully feathered, they are in too great plenty to be esteemed by the natives, except now and the

to use their feathers as ornaments.—Of the eatal
fowls they have turkies very large and delicious
and the same may be said of their other kinds
poultry, especially a white sort of hens, whi
feathers they dye of a fine green, and mix w
those of other birds, which they wear about th
heads and middle. They have likewise plen
of ducks and other water-fowl, but it is said t
Brasilians will not eat them, thinking them infe
tious; neither will they eat any kind of eg
esteeming them unwholesome, if not poisonou
and are surprised to see the Europeans eat th
without injury.

Among the fishes that are frequently seen on t
coast of Brasil, there is a remarkable one call
the globe fish from its orbicular form; and the
hedge-hog, as being beset all round with lar
spikes like those of the land one, whereby
bids defiance to all fishes of prey, and has
surprising facility of moving itself forward on t
water by the contraction and motion of the
prickles.

But of all the animals in these seas, there seems
be none more curious than the sea-bladder, whi
has not been taken notice of by many autho
It is not inaptly stiled a bladder, being in m
respects like one, and swimming on the surfa
of the waves. It is of an oblong roundish for
five or six inches in diameter, has a skin ve
thin and transparent, and, like a bubble rais
on the water, reflects all the colours of the sk
The inside is only filled with air, except about
spoonful of water which serves to balance it; a
underneath it has a set of fibres of a vermicu
form, which the creature extends or contrac
and thereby moves itself along. On its back

a kind of plaited membrane, which it likewise
ands or folds up at pleasure, in order to take
more or less wind, and it is only by these two
circumstances that these animals are known
move spontaneously, except when the wind
o strong for them to resist, by which they are
uently driven on shore and taken.

The remora, or sucking-fish, resembles a her-
, with crest and fins, having a sucker about
inches long on the top of his head. The
uth is wide, and the eyes small, the under
longer than the upper, with two rows of small
p teeth. This fish was much talked of amongst
ancients, who supposed (as appears from
y) that, by sticking to the side of a ship, it
able to stop the vessel under full sail, or a
le in swimming*. But as Mr. Catesby ob-
es, a number of these fishes can do no more
shells, corals, and other things of the same
, which make a ship somewhat slower; and
he same manner they may be some small hin-
nce to a whale.

Mr. Grose informs us, that these fish fasten
n the shark, by means of an oval-shaped
mbrane, of a texture admirably adapted to
purpose, with which they adhere so close to
skin of the shark, commonly on its sides or
k, as not to part with it, even when it is
en; and it is difficult to separate them by the
ost strength of the hands, if pulled against
grain of the sucker; but, sliding them on
ard with the grain, they come off very ea-
; and this force of adhesion continues while

* Hence they give it the name of remora, from re-
, to stop or hinder.

there is any life in them, as may be proved on applying them to a table, or any hard substance. They annoy the shark in the nature of vermin, drawing their sustenance from the slimy oozing of its body, while it can neither shake them off, nor destroy them.

To this we may add the pilot fish, which is seldom above a foot or eighteen inches long, but is extremely beautiful, being streaked transversely, with blue and a yellowish brown that have a very pleasing effect on the water, but lose much of their lively gloss when taken out of it. These fish, says Mr. Grose, are often seen in small shoals, swimming immediately a-head of the shark, or near him. When a bait is thrown out for the shark, they cluster about it, without attempting to nibble it; but by their motions to and fro, seem to guide the shark towards it; from whence they obtain the name of pilot-fish; when in company with the shark, they seldom take the small hook; but when they have lost this companion, or follow a ship, either singly, or in shoals, they sometimes bite and are caught. They are esteemed, for their size, the most delicious eating the ocean affords, and have nothing of that dryness attributed to many other sorts of fish.

In the seas of South America, and especially about the tropics, are often seen swimming in shoals those fishes we call old wives* and old husbands, which indeed make a very remarkable figure. The former is commonly about ten inches long, and five in breadth; has a very small mouth, with sharp teeth, a large eye placed high

* Pascoe Thomas says they found plenty of *Fish* (amongst others that he mentions) at the island *St. Catherine's*, on the coast of Brasil.

on the head, two nostrils or vent-holes under the fore part of the eye, a rising sharp back, the belly flattish, and the whole fish is covered with a hard crustaceous skin, of a brown colour, but curiously marked with indented spots, which are large on the sides, and smaller about the head and tail. The tail is long and slender, and the fish can draw it into its body at pleasure, as it were into a socket. It has four fins of a lighter brown than the body, as is also the end of the tail.

The old husband, supposed to be the male species, seems designed by nature for the defence of the female, as well as his own, being armed with two sharp horns on the fore part of his head, growing from a thick basis, about three quarters of an inch in length; and though but slender, they are so strong, that he is capable of giving dangerous wounds to an enemy. His hinder part is likewise well guarded with two long fins like his horns, one on each side of the belly near the tail; and when closely chased, he draws up his tail, and bids defiance with his horns to his pursuers. These two fishes swim together in company, and, except the horns, they bear a near resemblance to each other.

But we must return to the land, where we shall find some remarkable animals not yet mentioned; and first it may not be improper to take notice of what some travellers relate concerning the various kinds of monkeys to be met with in the Andes and other parts of South America. Some of them are said to be merry, others melancholy; some docile, and others heavy; some hairy, others almost naked; of themselves timorous, but taking courage if a man seems to be afraid.

Almost all the woods and forests of South America are filled with different kinds of these animals, of various colours, as black, brown, and inclining to red; there is also the same diversity in their size, some being a yard long, others half a yard, and others scarcely a foot. Their different species skipping in troops from tree to tree, hanging from the branches, and playing a thousand gambols, and, in other places, six, eight or more of them linked together in order to pass a river, with the dams, carrying their young on their shoulders, or throwing themselves into the oddest gestures, must appear fictitious to those who have not actually seen them. The flesh of all these different kinds is highly valued by the Negroes, especially that of the red; but, however delicate the meat may be, says our author, the sight of them is enough to make the stomach abhor them; for, being scalded when dead, in order to take off the hair, the skin is contracted by the heat, and, when thoroughly cleaned, looks perfectly white, and nearly resembles a child of about two or three years of age, yet the scarcity of food, in many parts of America, renders their flesh valuable; and not only the Negroes, but the Creoles, and even the Europeans themselves, eat them without scruple. It is highly probable that most of those people who have been stigmatised by the first discoverers with the name of Cannibals, obtained it on account of their eating these animals, which when thus dressed, were mistaken for children, and the larger kind for men and women. Indeed, there can be no doubt of this being the case, since most of the nations, who have been charged with living upon human flesh, have been found, upon a better acquaintance wit

m, to be of a mild and benevolent disposition,
dy to grant their aid to all who wanted their
stance; unless it be supposed that the first dis-
erers, merely from a spirit of malevolence,
resented them in such odious colours, in order
ive a sanction to their cruelties, and to have a
isible pretence for plundering and murdering
e who had never injured them.

Alligators are very common, both in South
erica and the West-Indies, but they seem to
und no-where in greater abundance than on
river Guayaquil, in Peru. These amphibious
nals, that live both in the rivers and adjacent
ns, when tired with fishing, leave the water,
ask in the sun, and then appear rather like
en wood, thrown ashore by the current, than
ng creatures; but, upon perceiving any vessel
r them, they immediately throw themselves
the water. They are the largest animals of
lizard kind, some of them being of so mon-
us a size as to exceed fifteen feet in length.
he head of the alligator is long, turning up at
nose, like the snout of a hog, and furnished
two rows of strong pointed teeth. His eyes
large, round, clear, and grey, with a black
il. The fore legs are shorter and weaker
those behind, and have five toes, three of
ch are armed with nails, but the two others
without. The hinder feet are larger and
ker, and have only four toes. Over the eyes
wo hard, scaly knobs, as big as a man's fist;
from the head to the tail, are a multitude of
knotty scales, which are impenetrable to a
ket-ball. The flesh smells very strong of
k, especially four kernels, two placed in the
o, near the thigh, and the other two at the

ast, one under each fore leg, about the size of
ullet's egg. During the time they lie basking
the shore, their huge mouths are wide open,
l filled with musketoes, flies, and other insects;
hen, suddenly shutting their jaws, they swallow
heir prey. They generally avoid a man, and on
he approach of any one, plunge into the water.
The female makes a large hole in the sand, near
the brink of a river, and there deposits her eggs,
which are almost as large as those of an ostrich,
and as white as those of a hen, but much more
solid. She generally lays about a hundred, con-
tinuing in the same place till they are all depo-
sited, which is about a day or two. She not only
covers them with sand; but, the better to con-
ceal them, rolls herself over them, to a consider-
able distance, and then returns to the water, till
natural instinct informs her that it is time to de-
liver her young from their confinement. When
she comes to the spot, she is followed by the
male; she then tears up the sand, and begin
breaking the eggs, with such care, that scarcely
single one is injured, and a whole swarm of lit
alligators are seen crawling about. She th
takes them on her neck and back, to remove th
into the water; but the watchful gallinazos se
this opportunity to deprive her of some; and e
female has reached the water with the few
maining; and then the male alligator devours what he can, till
and do not swim, she herself eats; when
this formidable brood, happily no more tha
or five escape.

The gallinazos, of which we have just
a description, contribute greatly to preve
increase; for being extremely fond of the

they, upon this occasion, make use of extraordinary address, and often make it their sole business to watch the females during the dry season, when they lay their eggs, the sides of the river not being then covered with water. The gallinazo keeps itself concealed among the branches of some tree, till the alligator has laid her eggs and is retired; but she is no sooner under the water, than the gallinazo darts down on the repository, and, with its beak, claws, and wings, tears up the sand, and devours the eggs, leaving only the shells. This banquet would richly reward its long patience, did not a multitude of gallinazos, from all parts, join the fortunate discoverer, and take a share in the spoil. These eggs, when fresh, are also eaten by the mulattoes. Thus Providence graciously diminishes the number of these destructive animals, which would soon increase so fast, that neither the river nor the neighbouring fields, would be able to contain them.

These destructive animals use great address in catching fish, which is their principal food: eight or ten, as if by agreement, drawing up at the mouth of a creek or river, while others go a considerable distance up, and chace the fish downwards; by which means none of a large size are able to escape them. The alligators, being unable to eat under water, on seizing a fish, raise their head above the surface, and, after satisfying their appetite, lay themselves on the banks. When they cannot find fish, they betake themselves to the meadows near a river, and devour colts and calves. This is done in the night, in order to surprise them in their sleep; and it is observable that those which have once tasted

flesh, become so fond of it, as never to feed
fish, but in cases of necessity. There ar
deed, many melancholy instances of thei
vouring the human species, especially chi
who have been out of doors in the dark;
having once seized them in their mouths,
make sure of their prey, against that assi
which the cries of the victim constantly bri
hastening into the water, where they i
diately drown it, and then, rising to the su
devour it at leisure. The boatmen, by in
derately sleeping, with one of their arms o
over the side of a boat, have been seized by
animals, and the whole body drawn into th
ter. Those alligators, who have once feas
human flesh, are known to be most dang
and are said to entertain an insatiable des
repeating the same repast. Hence the
bitants of the places where they abound, ar
industrious in destroying them. For this pu
they usually take a piece of hard wood, sha
ed at both ends; this they fasten in the m
to a thong, the end of which is secured o
shore, and then bait the wood with the li
some animal. The alligator, on seeing the
floating on the water, snaps at the bait
both points of the wood entering his jaws
dragged on shore, with his mouth wide
He then endeavours, with all his might, t
cue himself, while the Indians bait him,
ing the greatest damage he can do them
throw down those, who, for want of agil
care, do not keep out of his reach.

Brasil is remarkable for large serpen
other venomous creatures. There is one
Iboboka, which is between three and four

long, and of a considerable thickness. Its colours are various, as black, white, red, green, &c. and its bite mortal, but the poison works very slowly. Some of the scorpions are four or five feet long, but their sting is not reckoned so dangerous as those in Europe. Here also are lizards three or four feet in length, and in great numbers.

One of the most common snakes in the government of Carthagena, is the coral-snake, which is generally between four and five feet in length, and about an inch in diameter. Its appearance is very beautiful, the skin being variegated with green, yellow, and a vivid crimson. The head is long and flat like a viper; and each mandible furnished with a row of pointed teeth; through which, during the bite, it insinuates the poison, which is most dreadfully malignant; the person bit swelling to such a degree, that the blood gushes out through all the organs of sense, and even the coats of the veins, at the extremities of the fingers, burst.

The willow-snake resembles, in colour and form, a stick of that tree. It is very common in South America; and as it frequently hangs from the boughs, it really seems to be a part of the tree, till a too near approach discovers the mistake. Though its poison is less active than that of the coral-snake, its bite proves mortal, unless a remedy be speedily applied.

The centepee or scolopendra, which received the first of these names from the great number of its feet, grows to a monstrous size at Carthagena; and is more dangerous from its breeding in the houses. It is generally a yard in length, and about five inches in breadth: the back and

sides are covered with hard scales of a brov
colour, tinged with red; but so articulated
not in the least to impede the animal's moti
and yet so strong as to defend it against a
blow; so that it can only be killed by a blow
the head. These creatures are very nimble, a
their bite, without timely application, prov
mortal.

After mentioning these reptiles, it will be p
per to take notice of an insect, called *coyba*, whi
is extremely remarkable for the venom it co
tains. In shape it resembles a spider, but is mu
less than a bug. Its colour is of a fiery red, a
like the spider, is usually found in the corners
walls, and among the herbage of the meadov
It's venom is so extremely malignant, that
squeezing the insect, if any of it happen to
on the skin, either of man or beast, it instan
penetrates the flesh, and produces large tumou
that are soon succeeded by death. The only
medy hitherto known is, on the first appearan
of a swelling, to singe the party all over the bo
with flaming straw, or long grass. For this p
pose, the native Indians lay hold of the
tient, some by the feet, and others by the han
and with great dexterity perform the ope
tion; after which the person is thought to be
of danger.

Though this insect is so very noxious,
squeezing it between the palms of the hands
attended with no ill consequence, the callus p
venting the venom reaching the blood; acco
ingly the Indian muletteers, in order to grat
the curiosity of passengers, squeeze them
tween the palms of their hands; but shoul
person unused to labour make that experim

the effect would probably be nearly the same, as on any other part of the body. The people who travel along the valleys of Neyba, and others within the jurisdiction of Popayan, where they are in great danger from these coybas, are warned by the Indians who attend them, that, if they feel any thing stinging or crawling on their neck or face, to take care not to scratch, nor even to lift up their hand to it, the coyba being of so delicate a texture, that it would instantly burst; and as there is no danger, while they do not eject the humour they contain, the person acquaints some of the company with what he feels, and points to the place, where, if it be a coyba, the other blows it away. It is remarkable, that the beasts, who are incapable of such warning, are by instinct, taught a precaution against the danger; for, before they offer to touch the herbage with their lips, they blow on it with all their force, in order to disperse any of those pernicious vermin; and when their smell acquaints them, that they are near a nest of coybas, they immediately leap, and run to some other part; but sometimes a mule after all his blowing, has been known to take in some with his pasture; on which, after swelling to a frightful degree, he has expired on the spot.

ANTIQUITIES.

THE reader will not expect any thing very extraordinary under this head, in a part of the world whose inhabitants have been generally supposed unpolished and barbarous: but, as the

incas of Peru are famous in history, it m
be amiss to give a short account of some
noble structures which the Spaniards foun
they first invaded their country. At th
Cusco was the capital of the kingdom, an
was a castle built in such a surprising man
many people, who saw it, imagined it co
have been raised without the assistance
chantment. This fortress stood on the t
hill, and on the edge of a precipice, w
wards the town was perfectly perpen
Towards the country it was defended b
semicircular walls, of such height and th
that they were proof against all the fo
could be brought against them. Some
stones, were of such a prodigious size,
was inconceivable how they were hewn
the quarry, or brought to the place, the
having no iron tools, no beasts to draw th
engines to raise them to such a height
were dragged, however, by the strength
twelve, or fifteen leagues, over hills and
and along the most difficult roads; and
one stone in particular, to which the Indi
the name of *Syacusa* or "the Weary,"
it never arrived at the place for which it
signed. This rock is said to have bee
fifteen leagues by twenty thousand India
very rugged and uneven roads; but,
standing all their care and strength, i
better of them, and tumbling down the h
several hundred men, who were ende
to poise the weight. They raised it, l
once again, and with incredible pains
it to the plain in the neighbourhood o
where they were obliged to leave it,

e to get it up the hill on which the castle was
nate d.

Between each wall of the castle there was a
ace of twenty-five or thirty feet, which was
ed up with earth, and every wall had a breast-
rk on the top of it. Beyond these walls were
ee large towers, standing in a triangle, ans-
rable to the bending of the walls. The princi-
l of these towers had a fountain of excellent
ter, brought to it by a subterraneous aqueduct,
e source of which was only known to the inca
l his council, lest an enemy should discover
e stream, and cut it off in case of a siege. This
ver was round, and in it the inca had an apart-
nt, nobly furnished like the rest of his palaces.
e other two were square, and contained
oms for the garrison, who were all of the royal
ood. Underneath these towers were apartments
large as those above; and they had a communi-
tion with each other, by a subterraneous la-
rinth, through which it was difficult for a stranger
find his way without a guide. It is said that
eat part of the new city of Cusco was built with
e stones found in the ruins of this fortress.

The palaces of the incas in Cusco, besides the
stle just mentioned, were very spacious and
gnificent, some of the halls being two hundred
ees in length, and fifty or sixty in breadth; in-
much that the Spaniards converted one of them
o a cathedral church. The stones of these
ildings were so well joined together that they
eded no cement; but sometimes, for the sake
ornament, they closed up the seams of their
uctures with melted gold and silver, which
casioned the total destruction of most of them,
e Spaniards subverting the very foundations in

hopes of finding treasure. Most of the apartm
were decorated with figures of men, be
birds, and other animals, cast in gold; and on
walls, instead of tapestry, were plants and flo
of the same metal, intermixed with serp
butterflies, and other reptiles and insects.
seems there were no chairs in these palaces,
the inca himself sat on a stool made of gold, v
out arms or back, having a pedestal of the s
metal. They had also cisterns of gold in
bagnios, and the utensils of their kitchens, an
the meanest offices, were likewise of gold;
they neither purchased houses nor lands with
metal, as we do; but used it as an ornament
living, and buried it with them when they
The royal gardens were not only planted
great variety of trees, flowers, &c. but
figures of those and all sorts of animals
made of gold, and placed in the walks to a
them. These magnificent palaces, however,
greatly inferior to the temple of the Sun, w
was enriched with the greatest treasures that
the world beheld. Is was built of free-stone,
lined with gold, the cieling being also of the
metal, though the roof itself was no better
common thatch. It was divided into several
sters, or apartments; in the principal whe
towards the east, was placed the image o
Sun, consisting of one gold plate that covere
whole breadth of the chapel, and twice as
as the plates that covered the other walls.
image was of a circular form, representing
Sun with his rays darting from him, much i
same manner as he is drawn by European
ters; and on each side of it were placed
bodies of the deceased incas, so embalme

ey seemed to be alive. These were placed on
ones of gold, but on the arrival of the Spa-
ards they were concealed by the Indians, with
ost of the treasures of the temple.

This temple had several gates covered with
ld; and round the top of it, on the outside,
as a cornice three feet deep, consisting of gold
ate. Besides the chapel of the Sun, there were
e others of a pyramidal form, the first of which
as dedicated to the Moon, deemed the Sister and
ife of the Sun; and the doors and walls of this
ucture were covered with silver. Here was the
age of the Moon, of a round form, with a
oman's face in the middle of it; and on each
le of the image were placed the bodies of the
ceased empresses ranged in order. Next to this
apel was that of Venus, by the Peruvians called
iasca, who was much esteemed as an attendant
the Sun, as the rest of the stars were deemed
ids of honour to the Moon; and this chapel
as likewise plated with silver. The third chapel
as dedicated to thunder and lightning, which
ey looked upon as servants of the Sun; and
is was cieled and wainscoted with plates of gold.
e fourth was dedicated to the rainbow, as
ing its origin to the Sun; and this was also
vered with gold, and had on one side of it a
presentation of the rainbow. The fifth chapel
as an apartment for the use of the high-priest,
d others who officiated in the temple, who were
of the royal blood; and this, like the chapel of
Sun, was adorned with gold.

There was no other image worshipped in the
ple but that of the Sun, but there were numer-
figures of men, women, and children, and of va-
s birds, beasts, and other animals of wrought

gold, placed in it for ornament; and all the vessels and utensils were of the same precious metal. We likewise read of a sort of nunnery wherein were kept a thousand or fifteen hundred virgins, all of the blood of the emperors, who were intended only for the service of the temple. Nor was it only in the city of Cusco that a temple was erected, but almost every large town in the country had one adorned in the like sumptuous manner.

BUILDINGS.

LIMA, the chief town of Peru, is seated in a large fertile plain near the sea, and is surrounded by brick walls, fortified with several ramparts and bastions twenty-four feet high. The houses in general are only one story high as they have so frequently suffered from earthquakes; but what they want in height they make up in length and breadth; for many of them are two hundred feet long, and proportionably broad, so that they have ten or twelve large apartments on the ground floor. The roofs, for the most part, are covered with reeds and coarse linen; but those of the grandest houses are covered with fine mats, or beautiful cotton cloths. Most of the houses are also adorned with long galleries in front, and are agreeably shaded by handsome rows of trees.

The royal square is very handsome, and in t middle is a fountain of bronze, with an imag Fame spouting up water. All the churches convents are extremely rich, and many image the saints are of massy gold adorned with jewel From the river which crosses Lima, there

canals which run to most of the houses, and serve to water the gardens.

Carthagena is situated on a sandy island, which, forming a narrow passage on the south-west, opens a communication with Tierra Bomba. The land is so narrow on the north side, that originally the distance from sea to sea was only thirty-five fathoms; but afterwards enlarging, it forms another island on this side, and the whole city, excepting these two places, is entirely surrounded by the sea.

The city and suburbs of Carthagena are well laid out, the streets being straight, broad, and well paved. The houses in general are built of stone, and the apartments are well contrived; but the balconies and lattices are all of wood, as being more durable in this climate than iron, which is soon corroded and destroyed by the moisture and acrimonious quality of the nitrous air.—The churches and monasteries are large and handsome structures; but there appears somewhat of poverty in the ornaments, and some of them want what even decency requires.

It is particularly worthy of observation, that the walls of Lima, although built on the surface of the earth, without any foundation, have withstood those tremendous earthquakes which overthrew the most solid fabrics. This peculiarity is likewise found in the walls of other towns throughout the plain.

Buenos Ayres stands on a point called Cape Blanco on the south side of the Plata, in a fine plain, rising with a gentle ascent from the river. The streets are straight, broad, and uniform; and there is one very handsome square, one side of which is formed by the governor's castle. Most

the buildings are of chalk or brick, excep
cathedral, which is a magnificent structure,
posed chiefly of stone.

The town of St. Philip de Porto Bello s
near the sea, on the declivity of a mountain
rounding the whole harbour. Many of the h
are built with wood, but in some the first st
of stone, and the remainder of wood: the
about one hundred and thirty in number, and
of them are very large and spacious. At th
end of the town is a quarter called Guinea
cause there all the negroes, whether slaves o
have their habitations. This quarter is
crowded when the galleons are in the ha
most of the inhabitants of the town entirely qu
their houses at that season for the advanta
letting them.

The harbour of Porto Bello is extremely
modious for all sorts of vessels, and though i
trance is very wide, it is well defended by F
Philip de todo Fierro. It stands on the north
of the entrance, which is about six hundred fa
broad; but the south side being full of ridg
rocks, extending to some distance from the
a ship is obliged to stand to the north, th
the deepest part of the channel, which lies
middle of the entrance, and thus continue
straight direction.

On the south side of the harbour, and op
to the anchoring place, is a large castle called
Jago de la Gloria; to the east of which,
distance of a hundred fathoms, begins the
having before it a point of land projecting in
harbour.

Guiaquil is a city of considerable extent, t
ng along the banks of the river, fro

wer part of the old town to the upper part of e new, a space of near half a league; but the eadth is not at all proportional, every person ing fond of having a house near the river. All e houses of both towns are built of wood, and any of them covered with tiles; though the great- part of those in the old town are only thatched: t in order to prevent the spreading of fires, which this city has severely suffered on se- eral occasions, such covering is now prohibited. nd as a farther precaution against fire, which ey have so much reason to dread, the kitchens and twelve or fifteen paces from the houses; ith which they communicate by means of a long pen gallery, resembling a bridge; but so slightly ilt, that, on the least appearance of fire in e kitchen, it may be demolished in an instant, by hich means the house is preserved.

The ground on which the new city is built, nd the savannas in its neighbourhood, are not be travelled over either on foot or horseback uring the winter; for being a spungy chalk, it every where so level, that there is no declivity r carrying off the water: and therefore on the rst rain it becomes a general slough. In this re- pect the old town has the advantage, being built n a gravelly soil, which is never impassable. his city is defended by three forts; two on the iver near the city, and the third behind it, guard- g the entrance of a ravin. These are all built fter the modern method of fortification, but be- ore they were erected, it had only a platform, hich is still remaining in the old town. All he churches and convents are of wood, except hat of St. *Domingo*, still standing in the old *own, which is of stone*; the great solidity of the

ground in that part being sufficient for
ng buildings of this kind.

The city and its jurisdiction are under a
dor, nominated by the king, who holds
during five years. Notwithstanding he
dinate to the president and audience of
appoints the deputies in the several dep
of his jurisdiction, both for the police
government. Guiaquil contains, in p
to its dimensions, as many inhabitants as
in all America; the continual resort of s
drawn thither by commerce, contribut
greatly to increase the number, genera
puted at twenty thousand.

The city of Quito stands in the inl
of the continent of South America, and
eastern skirts of the West Cordillera
Andes. Its distance from the coast
South Sea is about thirty-five leagues west
tiguous to it, on the north-west, are th
tains of Pichincha, not less famous among
for their great height, than among the na
the great riches they are imagined to
The city is built on the acclivity of tha
tain, and surrounded by others of a
height, among the breaches, or guaycos,
are called here, which form the eminence
chincha. Some of these breaches are of
derable depth, and run quite through it,
great part of the buildings stand upon
This renders the streets irregular, and ex
uneven, some parts of the city being built
ascents, descents, and summits of the h

The city, with regard to magnitude,
compared to one of the second order in

but the unevenness of its situation is a great disadvantage to its appearance.

Near it are two spacious plains: both of which are interspersed with seats and cultivated lands, which greatly add to the prospect from the city, being continually covered with a lively verdure. These two plains contract as they approach the city; and at their junction, form a neck of land, covered with those eminences, on which part of Quito stands. It may, perhaps, appear strange, that notwithstanding two such beautiful and extensive plains are so near the city, a situation so very inconvenient should be preferred to either. But the first founders seem to have had less regard for convenience and beauty, than for preserving the remembrance of their conquests, by building on the site of the ancient capital of the Indians, who made choice of such places for erecting their towns; probably from their being better adapted for defence. Besides, the Spaniards, during the infancy of their conquest, little imagined this place would ever increase to its present magnitude. Quito, however, was formerly in a much more flourishing condition than at present.

The principal square in Quito has four sides, in one of which stands the cathedral, and in the opposite one the episcopal palace; the third side is taken up by the town house; and the fourth by the palace of the audience. It is very spacious, and has in the centre an elegant fountain. It is, indeed, rather disfigured than adorned by the palace of the audience; which, instead of being kept in repair, has been suffered to fall into ruins, only a *few halls* and offices being taken any care

of. The principal streets are paved; but t
which are not, are almost impassable after
which is here very common.

Besides the principal square, there are
others in Quito, and both very spacious, tog
with several others that are smaller. In t
the greatest part of the convents are situated,
thence make a very handsome appearance;
fronts and portals of those edifices, dedicate
religion, being adorned with all the embe
ments of architecture, particularly the conve
the Franciscans, which being wholly of free s
must have cost an immmense sum. The cathe
besides the richness of its furniture, is splen
adorned with tapestry hangings, and other c
decorations.

Among the courts, whose sessions are he
Quito, the principal is that of the royal audi
instituted in 1563, and consists of a presi
four auditors, and a royal fiscal, and perso
other high official situations in the prov
There is, likewise, another fiscal, called prot
de los Indios, who solicits for the Indians;
occasionally pleads in their defence. The
risdiction of this court extends to the utmost
of the province, and from its decisions li
other appeal than to the council of the Indie

Here are also established a tribunal de c
da; a treasury for the effects of persons dece
a very excellent institution, though frequ
abused; and a court of inquisition, under a
missary and familiars appointed by the holy
of Lima.

The cathedral chapter consists of the hi
dean, and other dignitaries, who enjoy con
able revenues. This church was erected

cathedral in 1545, and among other festivals celebrated in it with extraordinary magnificence, are those of Corpus Christi, and the Conception of our Lady; at which all persons of eminence assist.

Panama is built on an isthmus of the same name, the coast of which is washed by the South Sea. The houses in general are of wood, of one story, and a tiled roof, but large; and their disposition, and the symmetry of their windows, make a handsome appearance: a few however are of stone. The streets, both of the city and suburbs, are straight, broad, and for the most part paved.

In this city is a tribunal, or royal audience, in which the governer of Panama presides; and to this employment is annexed the captain-ship-general of Terra Firma, which is generally conferred on an officer of distinction, though his common title is that of President of Panama: it is a bishopric, and has also a court of inquisition appointed by the tribunal of inquisition at Carthagena.

The harbour of this city is formed in its road, by the shelter of several islands, particularly Isla de Naos, de Perico, and Flamencos; and the anchoring place is before the second, and thence called Perico. The ships here lie very safe, and their distance from the city is about two leagues and a half, or three leagues.

The harbour of Perico is the rendezvous of the Peru fleet, during the time of the fair; and is never without barks loaded with provisions from the ports of Peru, and a great number of coasting vessels going from thence to Choco, and parts on the western coast of that kingdom.

The principal and most common materials in building on the Guiaquil and other river South America, are canes; which also form inward parts, as walls, floors, and rails of stairs. The larger houses differ only in so the principal pieces, which are of wood. method of building is, to fix in the earth e ten, or twelve pieces of wood, more or less cording to the dimensions of the house, fo at the top, and of a proper length; all the a ments being on the first story, without any gr floor. Beams are then laid across on t forks, at the distance of four or five yards fro ground. On these beams, canes are laid in a manner as to form a kind of rafters; and these, boards, of the same canes, a foot and a in breadth, which form as firm and handso flooring as if of wood. The partitions of th veral apartments are of the same materials; the outer walls are generally latticed, for the admission of air. The principal beams o roof of large houses are of timber, the rafte cane, with smaller ones in a transverse direc and over these vijaua leaves. Thus a hou built with very little expence, though contai all the necessary conveniences.' With regar the poorer sort, every one's own labour serv procure him a habitation. The lower part of of these houses, are entirely open, without ha any fence, except the posts and stancheons by w the building is supported. The ground flo wholly useless in the winter, when all the cou is turned to mud. Such houses, however, as s beyond the reach of innundations, have gr floors furnished like the other apartments.

All the inhabitants have their canoes lot pa

from one house to another; and are so dexterous in the management of these skiffs, that a little girl ventures alone in a boat so small and slight, that another less skilful would overset in stepping into it.

The continual rains in winter, and the slightness of the materials with which these houses are built, render it necessary to repair them during the summer; but those of the poorer sort, which are low, must be rebuilt every year.

The vessels used upon the Guiaquil are chatas, canoes, and balzas, or rafts, a name which sufficiently explains their construction, but not the method of managing them; which these Indians, strangers to arts and sciences, have learned from necessity.

The balzas, called by the Indians jangadas, are composed of five, seven, or nine beams, of a sort of wood, which, though known here only by the name of balza, the Indians of Darien call puero; and, in all appearance, is the ferula of the Latins, mentioned by Columella. It is a whitish, soft wood; and so very light, that a boy can easily carry a log of it, three or four yards in length, and a foot in diameter.

Balzas are not only used on rivers, but small voyages are made at sea on them; and sometimes they go as far as Paita. Their dimensions being different, they are also applied to different uses; some of them being fishing balzas; some carry all sorts of goods from the custom-house to Guiaquil, and from thence to Puna, the Salto de Tumbez, and Paita; and others, of a more curious and elegant construction, serve for removing families to their estates and country houses, having the same convenience as on shore, not being in the least af-

tated on the river; and that they have suffi
room for accommodations, may be inferred
the length of their beams, which are twelve o
teen fathoms, and about two feet, or two and a
diameter; so that the nine beams, of which
consist, form a breadth of between twenty
twenty-four feet, and proportional in those o
ven, or any other number of beams.

The thickest beam of those which compose
balza, is placed so as to project beyond the
in its after parts, and to this is lashed the first b
on each side, and thus successively till the w
are secured; that in the middle being the pr
pal piece, and thence the number of beams i
ways odd. The larger sort of balzas gene
carry between four and five hundred qui
without being damaged by the water; for
waves of the sea never run over the b
neither does the water splash up between
beams, the balza always yielding to the moti
the waves.

But the greatest singularity of this floating
cle is, that it sails, tacks, and works as well, in
trary winds, as ships with a keel, and makes
little lee-way. This advantage it derives
another method of steering than by a rud
namely, by some boards, three or four yar
length, and half a yard in breadth, called gu
which are placed vertically both in the head
stern, between the main beams, and by thru
some of these deep in the water, and raising ot
they bear away, tack, lay to, and perform all
other motions of a regular ship.

CUSTOMS, MANNERS, AND GOVERNMENT OF THE INHABITANTS OF SOUTH AMERICA.

THE inhabitants of Lima consist of Spaniards, Indians, Negroes, Mestizos, and a variety of other casts, proceeding from the mixture of all three. The Spaniards, who make the greatest figure, have a multitude of slaves and other domestics, and keep coaches; while others are satisfied with having a chaise, no family of any substance being without one. These carriages are drawn by a mule guided by a driver, and have only two wheels, with seats opposite to each other; they are very light and airy, and, on account of their carving and gilding, sometimes cost eight hundred or a thousand crowns. There are said to be no less than five or six thousand of these vehicles kept in the city of Lima. The Negroes, Mulattoes, and their descendants, form the principal part of the inhabitants of that city; and of these are most of the mechanics. The Europeans also follow the same employments, for, the desire of gain being here the universal passion, the inhabitants pursue it by all possible means.

The dress of the men, in general, is little different from that worn in Spain: nor is there much distinction between the several classes, every person being allowed to wear whatever he can purchase; so that a mulatto, or any other mechanic, is frequently seen dressed in rich tissue. All the people at Lima are fond of fine clothes, and extremely lavish in this article; but the dress of the men is greatly exceeded by that of the women, who, in the choice of their laces, carry their taste to an amazing excess; and this has spre

through all ranks, except the lowest class of
groes, so that no woman of rank will wear any
is not made in Flanders. The dress of th
dies consists of a pair of shoes, stockings, a
a dimity petticoat, and a jacket; which in sum
is of linen, and in winter of a beautiful stuff.
the under petticoat, which only reaches to the
of the leg, hangs a border of very fine lace, thr
which the ends of the garters are discovered,
broidered with gold or silver, and somet
adorned with pearls. The upper petticoat, w
is of velvet, or some rich stuff, is fringed
round, and covered with lace or embroidery.
shift-sleeves, which are a yard and a half in len
and two yards wide, when worn for ornament,
covered with lace, so as to render the whole t
elegant. Over the shift is worn a jacket,
large circular sleeves, consisting of rows of lace
slips of cambric, with lace disposed between e
The body of the jacket is tied on the shoul
with ribands fastened to the back of the stays;
its round sleeves, being tucked up to the shoul
form, with those of the shift, what may be ter
four wings. In summer they have a kind of
of the finest cambric or lawn, richly laced; but
winter, the veil worn in their houses is of ba
which, when they go abroad full dressed, is ado
like the sleeves. Over the petticoat is an a
of the same stuff as the sleeves of the jacket.
short, they are so expensive in their dress, th
marriage-shift alone, frequently costs a thou
crowns. Their shoes, which have round toes,
always fastened with diamond buckles, or so
thing very brilliant, in proportion to the abilit
the wearer. Their hair, which is naturally bl
and capable of reaching below the waist, the

behind in six braided locks, through which is serted a gold bodkin, with a cluster of diamonds each end; and on this the locks are suspended, as just to touch the shoulders. On the front and pper part of the head, they wear diamond egrets, nd the hair is formed into little curls, hanging from e forehead, to the middle of the ears, with a large lack patch of velvet on each temple. Their ear-ngs are of brilliants, intermixed with tufts of lack silk, covered with pearls; and, besides their ecklaces, they wear rosaries about their necks, the eads of which are of pearls, either separate, or set clusters. Their diamond rings, necklaces, irdles, and bracelets, are all very curious, both ith regard to water and size; many ladies wear round jewel enriched with diamonds, suspended om their girdle, and much more superb than their ther ornaments. In short, a lady thus dressed is pposed to wear, at one time, what costs no less han thirty or forty thousand crowns; and yet he small value they seem to set upon them, by vearing them upon all occasions, is really sur-rising.

The women of Lima are generally of a middling tature, handsome, and genteel, with a remarkable ustre in their eyes; and the charms of their persons re considerably heightened by those of the mind, s they have clear and comprehensive intellects, with an easy and graceful behaviour that com-mands both love and respect; but they are so ond of perfumes that they constantly carry am-ergrise about them, and, not content with the natural fragrance of flowers, of which they are ikewise extremely fond, scatter perfumes even on heir nosegays. The most beautiful flowers they *ave in their* hair, and those most esteemed, for

their fragrance, they stick in their sleeves. T
the effluvia issuing from these ladies reach
considerable distance. The lower class of wo
even to the very Negroes, endeavour as mu
possible, to imitate their superiors in the fa
and richness of their dress; and their clean
is observable in the extraordinary neatness of
houses. They are naturally gay, sprightly,
jocose, without levity, remarkably fond of n
and have, in general, very good voices.

The nobility are extremely courteous to s
gers, who are charmed with their probity, p
ness, candour, and magnificence. The nati
an inferior rank are said to have too great a
of pride, but are so grateful, that a few instan
kindness, make a lasting impression on their m
the Mulattoes, however, being less civilized
haughty, quarrelsome, and turbulent.

The viceroy of Lima usually resides in that
his government is triennial, and he has all the
rogatives of royalty, being absolute in all a
whether military, civil, criminal, or relating t
revenue. Under him are officers and tribunal
executing the several departments of governm
and he fills up all vacant posts. For the sec
of his person, he has a body of a hundred and
horse guards, under the command of a captai
lieutenant, all in a blue uniform, richly laced
silver: a body of fifty halberdeers stationed i
rooms leading to the royal audience-chan
whose waistcoats are of crimson velvet, w
broad gold lace: he has likewise, within his
lace, another guard, consisting of a detach
from the garrison at Callao. All these at
casionally employed in executing his orders,

enforcing the decrees of the tribunals, after their having received his assent.

Though the plague and many other diseases, that produce the most fatal effects in Europe, are here unknown, yet there are others that are no less painful and fatal. The most common at Lima are malignant, intermitting, and catarrhous fevers, constipations, pleurisies, and convulsions. These last are extremely dreadful, and are divided into two kinds, the common or partial, and the malignant. They both come when nature is struggling in the crisis of some acute disease; but those afflicted with the former often recover, though the greater part die on the third or fourth day; while those who have the misfortune of being attacked by the latter, sink under it in two or three days. Both are attended with insupportable anguish; so that the groaning patient cannot be moved even from one side to the other, without suffering inconceivable tortures. The throat is so contracted that nothing can be conveyed into the stomach, and the jaws are sometimes so closely shut, that it is impossible to open them. Thus the miserable patient lies motionless, and tortured in every part of his body. The malignant kind is even in the first stage so violent, as to cause a contraction of the nerves of the vertebræ from the brain downwards; which, with all the muscles, become more and more constricted all over the body, till it is drawn backward in the form of an arch, and all the joints are dislocated. Slow and hectic fevers also prevail here; and the venereal disease is so common in this and all the other parts of Spanish America, that it is considered as no dishonour, few persons being entirely *free from* it.

The inhabitants of Carthagena, like those of Lima, may be divided into different casts or tribes, who derive their origin from a coalition of whites, negroes, and Indians. It will, therefore, be necessary to treat of each particularly.

The whites may be divided into two classes, the Europeans and creoles, or whites born in the country. The former are commonly called chapitones, but are not numerous: most of them either return into Spain, after acquiring a competent fortune, or remove up into the inland provinces, in order to increase it. Those who are settled at Carthagena, carry on the whole trade of that place, and live in opulence, whilst the other inhabitants are indigent, and reduced to have recourse to mean and hard labour for subsistence. The families of the white creoles compose the landed interest; some of them have large estates, and are highly respected, because their ancestors came into the country invested with honourable posts, bringing their families with them, when they settled here. Besides these, there are other whites, in mean circumstances, who either owe their origin to Indian families, or, at least, to an intermarriage with them; so that there is some mixture in their blood: but when this is not discoverable by their colour, the conceit of being whites alleviates the pressure of every other calamity.

Among the other tribes, which are derived from an intermarriage of the whites with the negroes, the first are the mulattoes, so well known, that there is no necessity for saying any thing farther on this head. Next to these are the tercerones, produced from a white and a mulatto; *with some approximation* to the former, but not *so near as to obliterate* their origin. After these

follow the quarterones, proceeding from a white and a terceron. The last are the quinterones, who owe their origin to a white and a quarteron. This is the last gradation, there being no visible difference between them and the whites, either in colour or features; nay, they are often even fairer than the Spaniards themselves. The children of a white and quinteron are also called Spaniards, and consider themselves as free from all taint of the negro race. Every person is so jealous of their tribe or cast, that if, through any inadvertence, without the least intention to affront, a stranger call them by a degree lower than what they actually are, they are highly offended.

Before they attain the class of the quinterones, there are several intervening circumstances which throw them back; for, between the mulatto and the negro there is an intermediate race, called samboes, owing their origin to a mixture between one of these with an Indian, or among themselves. They are also distinguished according to the casts their fathers were of. Betwixt the tercerones and the mulattoes, the quarterones and the tercerones are those called tente en el ayre, "suspended in the air;" because they neither advance nor recede. Children, whose parents are a quarteron or a quinteron, and a mulatto or terceron, are salto atras, or "retrogrades;" because, instead of advancing toward being whites, they have gone backwards towards the negro race. All the children between a negro and a quarteron, are called sambos de negro, de mulatto, de terceron, &c.

These are the most known and common tribes or casts. There are, indeed, several others, proceeding from their intermarriages; but being so

various, even they themselves cannot easily distinguish them.

These casts, from the mulattoes, all affect the Spanish dress, but wear very slight stuffs, on account of the heat of the climate. These are the mechanics of the city; the whites whether creoles or chapitones, disdaining such mean occupations, follow nothing below merchandise. But as it is impossible for all to succeed, great numbers, not being able to procure sufficient credit, become poor and miserable, from their aversion to those trades they followed in Europe; and, instead of the riches, which they flattered themselves with possessing in America, they experience the most complicated wretchedness.

In the house, the whole exercise of the ladies consists in sitting in their hammocks, and swinging themselves for air. This is so general a custom, that there is not a house without two or three, according to the number of the family. In these they pass the greater part of the day; and often men, as well as women, sleep in them, without minding the inconveniency of not stretching the body at full length.

Both sexes are observed to be possessed of a great share of wit and penetration, and also of a genius proper to excel in all kinds of mechanic arts. This is particularly conspicuous in those who apply themselves to literature, and who, at a tender age, show a judgment and perspicacity, which, in other climates, is attained only by a long series of years, and the greatest application. This happy disposition continues till they are between twenty and thirty years of age, after which they generally decline as fast as they rose; and frequently before they arrive at that age, when they

should begin to reap the advantage of their studies, a natural indolence checks their farther progress, and they forsake the sciences, leaving the surprising effects of their capacity imperfect.

The principal cause of the short duration of such promising beginnings, and of the indolent turn so often seen in these bright geniuses is, doubtless, the want of proper objects for exercising their faculties, and the small hopes of being preferred to any post answerable to the pains they have taken: for, as there is in this country neither army nor navy, and the civil employments are very few, it is not at all surprising, that the despair of making their fortunes by this method, should damp their ardor for excelling in the sciences, and plunge them into idleness, the sure forerunner of vice. The same is evident in the mechanic arts, wherein they early excel and speedily decline, from the causes already mentioned.

Charity is a virtue in which all the inhabitants of Carthagena may be said particularly to excel; and did they not liberally exert it towards European strangers, who generally come hither, as they phrase it, to seek their fortune, they would often perish with sickness and poverty. This appears a subject of such importance, though well known to all who have visited this part of the world, that a few words must be added on it, in order to undeceive those who, not contented with, perhaps, a competent estate in their own country, imagine that it is only setting their foot in the Indies, and their fortune is made.

Those on board the galleons, who are called Pulizones, are men without employment, stock, or recommendation: who leave their country as fugitives, and, without licence from the officer

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come to seek their fortune in a country where
are utterly unknown. These, after traversing
streets till they have nothing left to procure t
lodging or food, are obliged to have recourse to
last extremity, the Franciscan Hospital, w
they receive, not in a quantity sufficient to sa
hunger, but barely to keep them alive, a kin
pap made of casava, which the natives themse
will not taste. As this is their food, so their
ging is the entrance of the squares and the p
coes of churches, till their good fortune th
them in the way of hiring themselves to s
trader going up the country, and who wants a
vant: for the city merchants, standing in no
of them, show no great countenance to these
venturers. Affected by the difference of the
mate, aggravated by bad food, dejected and
tured by the entire disappointment of their ro
tic hopes, they fall into a thousand evils, w
cannot easily be described; and among ot
that distemper called, Chapelanada, or the dis
per of the Chapitones, without any other suc
to fly to than Divine Providence; for none
admittance into the Hospital of St. Juan de D
but those who are able to pay; and conseque
poverty becomes an absolute exclusion. No
is that the charity of these people becomes co
curious. The negro and mulatto, and other
women, moved at their deplorable condi
carry them to their houses, and nurse them
the greatest care and affection. If any one
they bury him by the charity they procure,
even cause masses to be said for him. The
neral issue of this endearing benevolence is,
the chapitone, on his recovery, during the fe
of his gratitude, marries either his negro or

latto benefactress, or one of her daughters; and thus he is settled, but much more wretchedly than he could have been in his own country, though he had only his labour to subsist on.

The disinterestedness of these people is such, that their compassion towards the chapitones must not be imputed to the hopes of producing a marriage, it being very common for them to refuse offers with regard to themselves or their daughters, that their misery may not be perpetual; but endeavour to find them a master, whom they may attend up the country, whither their inclination, or fairer prospects lead them.

Those who remain in the city, whether bound by one of the above marriages, or engaged in some mean occupation, are so harassed with labour, and receive such small wages, that their condition in their own country must have been miserable indeed, if they had not reason to regret their quitting it. And the height of their enjoyment, after toiling all day and part of the night, is to regale themselves with some bananas, a cake of maize, or casava, which serves for bread, and a slice of casajo, or hung beef; without ever tasting wheaten bread during the whole year. Others, equally unfortunate with the former, retire to some small farm house, where, in a bujio, or straw hut, they live little different from beasts, cultivating, in a very small spot, such vegetables as are at hand, and subsisting on the sale of them.

Among the reigning customs here, some are very different from those of Spain, or the most known parts of Europe. The principal of these are the use of brandy, cocoa, honey, sweetmeats, and smoking tobacco.

The use of brandy is so common at Carthagena

that the most regular and sober persons of all degrees, never omit drinking a glass of it every morning about eleven o'clock, alleging that this spirit strengthens the stomach, weakened by copious and constant perspiration, and sharpens the appetite. *Hacer las once*, "to do the eleven," that is to drink a glass of brandy, is the common phrase. This custom, not esteemed pernicious by these people, when used with moderation, has degenerated into vice; many being so fond of it, that during the whole day, they do little else.

Chocolate, here known only by the name of cocoa, is so common, that there is not a negro slave but constantly allows himself a regale of it after breakfast; and the negro women sell it ready made about the streets, at the rate of five farthings sterling for a dish. This is, however, so far from being all cocoa, that the principal ingredient is maize; but that used by the better sort is neat, and worked as in Spain. This they constantly repeat an hour after dinner, but never use it fasting, or without eating something with it. They also make great use of sweetmeats and honey; never so much as drinking a glass of water without previously eating some sweetmeats. Their sweetmeats are eaten with wheat bread, which they use only with these and chocolate; the honey they spread on casava cakes.

The passion for smoking is no less universal, prevailing among persons of all ranks in both sexes. The ladies, and other white women, smoke only in their houses, a decency not observed either by the women of the other casts, nor by the men in general, who regard neither time nor place. The manner of using it is, by slender rolls composed of the leaves of that plant; and the women

have a particular method of inhaling the smoke. They put the lighted part of the roll into their mouths, and there continue it a long time, without its being quenched, or the fire incommoding them. A compliment paid to those for whom they profess an intimacy and esteem, is to light their tobacco for them, and to hand it round to those who visit them. To refuse the offer would be a mark of rudeness not easily digested; and, accordingly, they are very cautious of paying this compliment to any but those whom they previously know to be used to tobacco.

One of the most favourite amusements of the natives here, is a ball, or fandango, after the manner of the country. And these are the distinguished rejoicings on festivals and remarkable days. These diversions, in houses of distinction, are conducted in a very regular manner; they open with Spanish dances, and are succeeded by those of the country, which are not without spirit and gracefulness.

The fandangos, or balls of the populace, consist principally in drinking brandy and wine, intermixed with indecent and scandalous motions and gestures; and these continual rounds of drinking soon give rise to quarrels, which often bring on misfortunes. When any strangers of rank visit the city, they are generally at the expence of these balls, and as the entrance is free to all, and no want of liquor, they need give themselves no concern about the want of company.

Their mournings and funerals are also something singular, as in these particulars they endeavour to display their grandeur and dignity, too often at the expence of their tranquillity. If the deceased be a person of condition, his body is placed on

pompous catafalco, erected on the principal s
ment of the house, amidst a blaze of tapers.
this manner the corpse lies twenty-four hou
longer, for the acquaintance of the family to
it at all hours; and likewise, the lower class o
men, among whom it is a custom to come ar
ment the deceased. The funeral also is ac
panied with the like noisy lamentations;
even after the corpse is deposited in the g
the mourning is continued in the house for
days.

Having given this account of the inhabi
of Lima and Carthagena, which may suffic
most of the Spanish cities, we shall now turn
attention to the manners and customs of the
dians in the audience of Quito.

These people, at psesent, seem to have n
semblance to those originally found in the c
try; but they appear to possess a happy ser
of mind, which no accident can disturb. In
mean apparel they seem as contented as a pr
in the most splendid robes: they utterly d
gard riches, and even the power and auth
within their reach; so that it seems to be
same to an Indian whether he be created an alc
or obliged to perform the very meanest off
for their regard for each other is neither incr
ed nor diminished by such circumstances;
they are as well satisfied with their simple
as others with the most luxurious repasts.
cannot stimulate, respect induce, nor punishm
compel them to shake off their natural indoler
and as scarcely any thing can prevail on ther
work, whatever is necessary to be done is le
the Indian women, who, being much more
tive, *spin* and make the shirts and drawers w

form the only apparel of their husbands: they likewise cook the provisions, grind barley, and brew a kind of beer called *chicha*; while the husband sits squatting on his hams, looking at his busy wife.

The only domestic service the Indian men perform, is to plow their little spot of land, which is sowed by the wife. When they have once squatted down, no reward can induce them to stir; so that should a traveller, who had lost his way, come to one of their cottages, the wife must say he is not at home. If he should alight and enter the cottage, the Indian would still be safe; for, having no light but what comes from a hole through the door, he could not be discovered; and, should he even see the Indian, neither intreaties, nor rewards, would induce him to stir a step. They are lively only in parties of pleasure, rejoicings, entertainments, and especially dancing; but the liquor must circulate briskly, and they continue drinking, till they are entirely deprived of sense and motion. Yet it is remarkable that the Indian women and the young men, before they are of an age to contract matrimony, are never guilty of this vice, it being a maxim with them, that drunkenness is the privilege of none but masters of families, who have others to take care of them when they can take no care of themselves.

On the celebration of any solemnity, he who gives the entertainment, invites all his acquaintance, providing a jug of chicha for each, containing two gallons. If it be a large town, a table is placed in the court of the house, or, if it be in a village, before the cottage; this is covered with a carpet only used on such occasions, and upon it is placed a slight repast. The women

present the chicha to their husbands in c
till their spirits are raised, and then
upon a pipe and tabor, while others danc
of the best voices among the Indian w
songs in their own language, those wh
dance squat down till it comes to their
when tired with intemperance and dan
all lie down together. These festivities
continue three or four days, till the prie
among them, spills all the chicha, and
the Indians, lest they should get more.

In their cottages, both they and the an
breed, live together. As they are fond
they are never without three or four, be
or two, and a few poultry. These, v
earthen-ware, as pots and jugs, with t
which their wives spin, are all their effec
two or three sheep-skins, which serve
beds. Though the Indian women breed
other domestic animals in their cottages,
neither eat nor sell them: so that, if a
who is obliged to pass the night in on
cottages, offers ever so much money f
they refuse to part with it, and he is
kill the fowl himself, at which the goo
shrieks and bursts into tears, till, seeing
for what is past, she wipes her eyes, a
takes what the traveller offers her.

As in their journeys they frequently
whole family with them, they fasten
with a string or thong of leather, wh
for a lock; and if their journey is to la
days, they take their animals to the
some neighbour or acquaintance; if
they leave their dogs to guard them,
discharge their trust with such fidelity

will fly at any one, except their masters, who offers to enter the cottage. It is observed, that dogs bred by the Spaniards and Mestizos have such a hatred to the Indians, that, if one of them approaches a house where he is not very well known, they fall upon him, and, if not called off, tear him to pieces; for they know them at a distance by their scent. On the other hand, the dogs of the Indian breed are animated with the same rage against the Spaniards and Mestizos, whom they also smell at a distance.

The Indians of this country act contrary to all other nations in their marriages; for they never chuse a woman who has not been first known by some body else, which they consider as a certain sign of her having something pleasing in her. A young man having asked the object of his affections, of her father, and obtained his consent, they immediately begin to live together as man and wife. But, at the end of three or four months, and frequently of a year, he leaves her without any ceremony, and perhaps expostulates with his father-in-law, for imposing upon him, by giving him his daughter, whom no body else had thought worthy of making his bedfellow. But, if nothing of this happens after passing three or four months in this commerce they then marry. This custom is still very common, though the whole body of the Spanish clergy have used their utmost endeavours to put a stop to it.

These Indians show their intrepidity upon many occasions, especially in the alacrity and resolution with which they halter a bull or beat it full speed; for a single Indian, with only a horse and his noose, never fails of getting the

better of all the cunning and rage of the most furious bear. This noose is made of a cow-hide, so thin as not to be seized by the beast's paw, and strong enough not to be broken by his struggling. On perceiving this animal, they directly make towards him, while he rears himself up, in order to seize the horse. But the Indian being advanced within a proper distance, throws the noose about the bear's neck, and, fastening the other end to the saddle, instantly claps spurs to his horse; and the bear unable to run so fast as he gallops, and struggling to get free, is choaked. In short, great part of the rusticity of the Indians is owing to the want of education; for, where they have enjoyed that advantage, they are found to have as good rational faculties as other men. Hence all the Indians, brought up to handicraft trades in cities and large towns, appear far more acute and sensible than those who have spent their lives in little villages; and many of these distinguish themselves by their genius and abilities.

We shall now take a view of the inhabitants of Brasil, who are composed of Portuguese, Creoles, Negroes, and Brasilians. The Portuguese, born in Europe, enjoy the places of trust and profit, and are the fewest in number: the Creoles, or those born of Portuguese parents in Brasil, are more numerous; and the Mestizos, or mixed breed, are more numerous than either, few of the Portuguese having been without black or tawny mistresses; and, their issue having intermarried, they are multiplied extremely. The Negroes are likewise very numerous, and are much more valued than the Brasilians, from their being more strong and fitter for labour; the latter indeed, are

few in number, the Portuguese, in the invasion of the country, like the Spaniards in their conquests, destroying the unfortunate natives by every method of cruelty.

The most judicious travellers describe the Portuguese and Creoles of Brasil, as sunk into the most effeminate luxury, and practising the most desperate crimes; and, in short, as hypocritical, dissembling, lazy, proud, and cruel. In their diet, however, they are penurious; for, like the inhabitants of most southern climates, they are fonder of show, state, and attendance, than of the pleasures of free society; yet their feasts, which are seldom made, are extravagantly sumptuous. This character, which is represented as particularly just with respect to the Creoles, has been attributed to their being bred up among slaves, who perform all the business; and to their being permitted to keep a prodigious number of Negroes, not merely to work in the field, nor for domestic employments, but to attend their persons, and form their train. These they render as corrupt as themselves, by making them the instruments of their crimes, and employing them as bullies or assassins, whenever they are disposed to terrify or seek revenge. Nothing indeed can be more adapted to create the worst disorders, than the unnatural junction of slavery, idleness, and a licentious life. These Negroes are suffered to go armed, and there are vast numbers who have either merited or bought their freedom; and this is allowed in a country where the Negroes are said to be ten to one of the Portuguese and Creoles.

The Portuguese call the Brasilians, who inhabit *the north* part of the country, Tapuyers, and

those who dwell in the south Tupin
divide them into several petty nations,
language, though very little in their m
customs. The Tapuyers are of a go
and of a dark copper colour, with
hanging over their shoulders; but they
on their bodies or faces, and go alm
the women only wearing a slight c
leaves round their waist. They are,
adorned with glittering stones hung
lips or nostrils, bracelets of feathers
arms, and a circlet of feathers upon th
Some paint their bodies with variou
while others, rubbing themselves over
stick beautiful feathers upon them, wh
them appear at a distance more like
human creatures. The Tupinambes w
the south of Brasil are of a moderate st
a fairer complexion than their northe
bours who lie nearer the line; but
them are so black as the Africans in th
titude; for there were no Negroes in
before they were transported thither b
tuguese and Spaniards. These people
have flat noses, which are not natural, b
in their infancy, a flat nose being there
a beauty; they have also black curle
their heads, and paint themselves like
them Brasilians.

They have been represented by ma
as cannibals, and all the Brasilians h
charged with eating human flesh; but th
to have been a slander cast upon them,
colour to the cruel treatment they have
from their conquerors; nor will the h
allow that they had any kind of religi

confess that they had priests, and admitted of a state of rewards and punishments, according to their valour or cowardice. Their prevailing religious notions are, that there are certain invisible beings, the dispensers of good and evil, the rewarders of virtue, and the punishers of vice; and that, after death, the good shall visit their ancestors who dwell in a delightful place beyond the Andes. They have always been remarkable for their hospitality and civility to strangers: those who live near the Portuguese are a tractable and ingenious people, ready to learn any art or science the Portuguese will teach them; and take nothing so kindly of the priests as their instructing their children, which has given them an opportunity of making many converts; and, in short, those who live under the Portuguese, generally conform to their customs in eating, drinking, and clothing.

Before we leave the inhabitants of South America, it may be proper to observe that, from a voyage made by commodore Byron round the world, there is undoubted testimony of there being a people on the most southern extremity of America, of an extraordinary size. The commodore, with a number of his men, landed, and, after many amicable signs, presented these people with a number of trinkets, as strings of beads, ribands, &c. The commodore, to facilitate the distribution of them, made these Indians sit down on the ground, that he might put the strings of beads, &c. round their necks; and such was their extraordinary size, that in this situation they were almost as high as the commodore. Their middle stature seemed to be about eight feet, their *extreme* nine and upwards. Their cloths

ing consisted of the skins of Peruvian s
which reached from their shoulders down t
knees; and their hair was black, long, and
ing down behind. The stature of the wome
equally surprising with that of the men, and
faces painted in a most extravagant manner.
of the women had collars on their neck
bracelets on their arms; and the infants, who
carried by their mothers, had a largenes
strength of features, which, considering the
seemed to bear some proportion to those o
parents. The people, thus gigantic in thei
appeared extremely humane and friendly,
had all the symptoms of a gentle and bene
disposition, and were so delighted with th
ferent trinkets which they had an opportun
viewing, as they hung on their necks and fell
on their bosoms, that the commodore could s
ly restrain them from caressing him. They
signs to the commodore, and that part
ship's crew which landed, to go with the
wards some smoke which appeared at a di
pointing to their mouths, as if they inten
give them some refreshment; but it was t
improper to comply with this friendly invit
and, when the English left them, they ap
greatly afflicted. These people have beer
tioned by several authors, but there wante
ficient evidence of the truth of their
ence, till the publication of a voyage rou
world, under commodore Byron, which be
dishable marks of authenticity.

CH

CHAP. II.

OF NORTH AMERICA.

Situation, Climate, Soil, &c.

NORTH America is that grand division of the New World which extends north and south, from about the tenth degree of north latitude to the north pole; and east and west, from the forty-fifth to the hundred and sixty-fifth degree of west longitude from London. It is bounded by the Arctic icy ocean on the north; by the Atlantic on the east; by South America on the south; and by the Pacific ocean and the sea of Kamschatka on the west.

This extensive tract of country comprehends the Spanish territories of Mexico or New Spain, New Mexico, Louisiana, Florida, and California; the United States; and the British colonies of New Britain, Canada, and Nova Scotia. Besides these there are immense regions to the north and west, the boundaries of which have never yet been discovered.

Mexico, or New Spain, (which was for several ages a great and flourishing monarchy) extends from seven degrees thirty minutes to thirty degrees forty minutes of north latitude. It is bounded on the south-east by the isthmus of Darien; on the east by the north sea and the gulph of Mexico; on the south and west by the Pacific ocean; and on the north-west by New Mexico. This prodigious country stretches along the Pacific ocean above two thousand miles, and the coast towards the

Atlantic ocean is no less than sixteen hundr
extent, but the breadth is extremely unequa
to the north-west it is supposed to be betwee
and seven hundred miles over, while to
the south-east it is confined to the isthmus, wh
the narrowest part is not much above sixty
broad.

The greatest part of this country lying w
the torrid zone, the air is extremely hot, but
qualified with refreshing showers, and with
nate land and sea breezes; in some parts th
pours rising from a great number of lakes a
vers cool the air, and render it mild and ple
The greatest heats are during the months o
bruary, March, and April, when the sun is se
obscured by clouds. The rainy season begi
wards the close of April, and continues ti
month of September; and is always preced
tempests of thunder and lightning, which in
till June, when the rain falls in torrents. O
eastern coast, where the land is low and m
the air is extremely unhealthy, and the lan
cumbered with almost impenetrable woods of
go-trees, that have a bare and disagreeable a
and extend a considerable way into the w
The inland country assumes a more agreeab
pearance, the air is more temperate, and th
extremely fertile. On the western side the
being not so low as on the eastern, is much
and abounds with plantations. In general
places under the same climate enjoy more
benefits of nature, and of the necessaries and
ries of life; but, like all the tropical countri
abounds more with fruit than with corn.

The province of New Mexico is suppos
extend between the 28th and 38th degrees of

latitude. On the north is bounded by high mountains, and a country entirely unknown to Europeans; on the east it has the country of Louisiana; on the west the Californian lake and the river Colerado; while on the south it is bounded by Old Mexico; but the far greatest part of this country is still in the hands of the natives, who have the happiness to enjoy their liberty.

As it is seated in the midst of the temperate zone, it enjoys an agreeable climate; for, though the summers are very warm, and the winters pretty sharp, the former are neither stifling nor unhealthy, nor the latter intensely cold, nor deluged with floods of heavy rain, but the air is clear and salubrious. The country is finely watered with rivulets and rivers, but few of them are large or navigable. The land is beautifully interspersed with rising grounds and fertile plains, covered with trees, some of which are fit for timber, and others produce various kinds of fruits. In short, it is affirmed to be one of the pleasantest, richest, and most plentiful countries in the world. However, as in all the other Spanish settlements, only an inconsiderable part of the country is cultivated, compared with its extent.

The peninsula of California is the most northern part of the Spanish dominions on the continent of America. It was for a long time considered as an island, but is now found to be a peninsula in the Pacific Ocean, issuing from the north coast of America, and extending from cape Sebastian in 43 degrees 30 minutes north latitude to the south-east, where it is terminated by St. Lucar, in latitude 22 degrees 32 minutes, the whole peninsula being eight hundred miles in length. On the north it is bounded by an unknown part of

California, wh
the Vermilion sea; and by
south and west.

Though California lies for the most part
temperate zone, the coast is very hot in su
but within land the air is more temperat
winter it is very cold but healthy; howeve
extensive a country there must be great va
both of climate and soil; and it has not on
of the most inhospitable deserts in the
but some of the most beautiful lawns,
woods, and enchanting pastures and
But, though this extensive country is
subject to Spain, they have only one sm
town, which is seated near the Cape of
and no other use is made of it than as
refreshment for the Manilla ships, ar
the head residence of the missionaries
of whom have settled in the country,
propagate the Romish religion.

Louisiana was, till lately, consider
of the powers of Europe as a much
country, than it is at present, it be
by M. de Lisle, as extending on
nada; on the east to the provinc
Carolina, Virginia, Pennsylvania,
on the south to the gulf of Mex
west to New Mexico, New Spa
countries inhabited by the India

The country, at present ter
lends from the 29th to the 40t
latitude; and from about the
97th. degree of west longi
Though the soil is very indiffe

of the Mississippi, the country contains a great deal of excellent land, well stocked with a variety of trees, planted by the hand of nature. The isle of Orleans, at the mouth of the Mississippi, is a very beautiful and fertile spot of ground, on which the French had a considerable city named New Orleans, which is the capital of Louisiana; and here the Spanish governor resides. About seven eighths of the town were destroyed by fire, in the space of five hours, in the year 1788, but it has been rebuilt since that unfortunate accident.

The country to which the Spaniards gave the name of Florida, is a peninsula, bounded by Georgia on the north; by the Mississippi and the gulf of Mexico on the west; by that of Florida on the south; and by the channel of Bahama and the Atlantic ocean on the east; extending from Georgia to cape Florida, between 25 degrees 6 minutes, and 30 degrees 58 minutes north latitude. It is divided into east and west Florida, the former comprehending the coast washed by the Atlantic ocean, and the latter that near the gulf of Florida and Mississippi. The air, though hot, is pure and wholesome; and the soil, at a little distance from the coast, where it is generally sandy, is remarkably rich and fruitful. It abounds with all kinds of timber, particularly oak, cypress, palm, cedar, pines, and chesnut trees; and sassafras is in particular found in the greatest plenty; excellent oranges, peaches, limes, mulberries, cocoas, plumbs, and many other fruits of a delicious flavour, grow here in great abundance; likewise olives, and vines of various sorts are the natural produce of the country; and the land is thought to be as proper for the cultivation of the grape, as the warm countries of Europe.

We must now turn our attention to the Independent and United States of America, including New England, New Hampshire, Massachusets, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, Kentucky, North Carolina, South Carolina, Georgia, the Western Territory, and Vermont.

New England is a high and mountainous country, formed by nature to be inhabited by a vigorous and hardy race. The mountains are comparatively small, running nearly north and south in ridges parallel to each other; and between these ridges flow the great rivers in majestic meanders, receiving the innumerable rivulets and streams which proceed from the mountains on each side. —On the sea coast, the land is low, and in many parts level and sandy, but in the valleys between the mountains, it consists of a strong rich soil, capable of being cultivated to good advantage.

New Hampshire, embosoming a number of very high mountains, and lying contiguous to others whose lofty summits are covered with snow and ice three quarters of the year, is intensely cold in the winter season, and even in summer, the heat is of short duration: the air, however, is generally serene and healthful, and the labouring people enjoy an excellent state of health. The soil, in many places, is sandy, but affords excellent pasturage; and the intervals at the foot of the mountains are greatly enriched by the showers which bring down the soil upon them, forming a fine mould, and producing exuberant crops of corn and herbage. The back lands which have been cultivated, are generally very fertile, and produce various kinds of *grain, fruits and* vegetables; and the uncultiv

roots, and other vegetables. It is divided into seventeen counties, and in the year 1795, it contained about two hundred and seventy towns. The province of Main belongs to this state.

Rhode Island is as healthful a country as any part of the United States; for in summer, the extreme heats which prevail in other parts of America are allayed by refreshing breezes; and in winter the air is softened by a marine vapour, which also enriches the soil. The western and north-western parts of the state are barren and rocky, but in some parts the land affords excellent pasturage, together with culinary plants and roots in great variety and abundance.

Connecticut, though subject to the extremes of heat and cold in their seasons, appears to be remarkably healthful, as the major part of its inhabitants attain to longevity. In the maritime towns the weather is variable, according as the wind blows from the sea or land; but towards the inland parts, the sea-breezes have less effect upon the air, and the weather is consequently more settled. The north-west winds, in the winter season, are often extremely piercing, owing to the great bodies of snow which lie in the immense forests north and north-west. But the clear and serene temperature of the sky makes amends for this severity, and is peculiarly conducive to health.

This state consists, for the most part, of broke

land, made up of mountains, hills, and valleys; and is exceedingly well watered.—Some small parts of it are thin and barren, but in general, it has a strong and fertile soil, and is very well calculated for pasture and mowing.

New York, for the most part, is intersected by ridges of mountains, running in a north-east and a south-west direction. Beyond the Allegany mountains, however, the country is a dead level, of a fine rich soil, covered in its natural state with maple, beech, walnut, hickory, and mulberry trees. Hemlock swamps are interspersed thinly through the country; but the hills are thickly clothed with timber, and the valleys, when properly cultivated, produce good crops of wheat, hemp, flax, peas, oats, and Indian corn. The best lands, however, which lie along the Mohawk's river, and to the west of the Allegany mountains, are yet in a state of nature, or are just beginning to be settled.

New Jersey contains all the varieties of soil; but it has a greater proportion of *barrens* than any of the other states. The good land in the southern counties lies principally on the banks of rivers and creeks, and consists of a stiff clay which produces various species of oak, hickory poplar, chesnut, ash, &c. There are some large tracts of salt meadow along the Delaware, which afford plentiful pasturage for cattle in summer, and hay in winter, but they are infested with prodigious swarms of flies and musquetoes, which prove extremely troublesome both to man and beast. Along the sea-coast, the inhabitants subsist principally by feeding cattle on the salt meadows; and the swamps afford lumber, which is easily conveyed to a good market.

In the hilly parts of the state, which are

rocky for cultivation, the soil produces wheat, rye, Indian corn, oats, barley, and fruits of all kinds common to the climate. Some of the lands also in these parts are fit for grazing; and many of the farmers keep large dairies.

Pennsylvania, which is one of the finest countries in America, is about two hundred and eighty-eight miles in length, and nearly a hundred and fifty-six in breadth; being bounded on the north by the country of the Iroquois or Five Nations; on the east by the Delaware river; and on the south and west by Maryland. The air is peculiarly sweet and serene; and during the spring, which continues from March till June, the weather is extremely pleasant. In the months of July, August, and September, the heats would be almost intolerable, if they were not mitigated by frequent cool breezes; and the winters are excessively cold. But the inhabitants never feel those quick transitions from cold to heat, by a change of the wind from north to south, as those who live eastward of the Allegany mountains, and near the sea.

Almost one third of this state may be called mountainous, particularly some countries through which pass, under various names, the numerous ridges which collectively form what geographers stile, "the great range of Allegany mountains." There is a remarkable difference between the country on the east and west side of this range; for between the mountains and the lower falls of the rivers which run into the Atlantic, are several ranges of stones, sand, earths, and minerals, which lie in the utmost confusion; and between these lower falls and the ocean is a very extensive collection of sand, clay, mud, and shells, partly thrown up by the sea, and partly brought down

by the floods from the upper country. But on the westward of the Allegany mountains the country, in these respects, is totally different. It is very irregular, broken, and variegated, but it contains no mountains; and all the various strata of stone appear to have lain undisturbed in the situation wherein they were first formed. The layers of clay, sand, and coal, are nearly horizontal; and every appearance tends to confirm the opinion, that the original crust in which the stone was formed, has never been broken up on the west side of the mountains, as it evidently has been eastward of them.

Delaware is, for the most part, a low flat country, and a considerable portion of it lies in forest. What has been cultivated is chiefly barren, except in Indian corn, of which it produces exuberant crops. In some parts, however, the soil is more fertile, and produces large quantities of wheat and all the other kinds of grain common to Pennsylvania. The forests contain a profusion of tall pines, which are manufactured into boards, and exported in large quantities, into every sea-port in the three adjoining states. The climate, in many parts is very unhealthy, owing to the flatness of the land and the stagnation of the waters; and the inhabitants are very subject to intermittents.

Maryland is bounded on the north by Pennsylvania and Delaware bay; on the east by the Atlantic ocean; on the south by Virginia; and on the west by the Apalachian mountains. It is seated between the 38th and 40th degrees of north latitude, and between the 74th and 78th degrees of west longitude, extending about one hundred and *forty miles in length* from north to south, but not *much in breadth*. This province is divi-

the eastern and western divisions by Chesapeak bay. Though in summer the air is excessively hot, and in winter very cold, while the north wind blows, yet the heats are seldom troublesome, and then only in a perfect calm, which seldom happens above two or three days in the year; and then only a few hours at a time, when it is rendered very tolerable to the inhabitants by their cool shades, their open and airy rooms, arbours and grottoes. The weather, in spring and autumn, is as pleasant as can be wished: even the winters do not last above three or four months, and in these they have seldom one month's bad weather. That part of the country which lies on the bays of the sea and the mouths of the rivers, is hot and moist; but, higher up in the country, the air is more agreeable. In the heat of summer indeed they have dreadful thunder; but as it cools and refreshes the air, the people rather wish for than fear it.

The face of the country is divided into low lands next the sea, the hilly country towards the heads of the rivers, and the Allegany or Apalachian mountains, which rise to a great height, and extend from the north-east to the south-west, parallel to the Atlantic ocean. The soil here is as fruitful as in any other country, the principal part being a large plain interspersed with hills of so easy an ascent, and of such a moderate height, that they rather seem an artificial than a natural ornament. Abundance of rivers and brooks diffuse fertility through the country, and every tree, plant, and grain that grows in Virginia, thrives as well here.

Virginia, which was thus called in honour of queen Elizabeth, is a very extensive territory, being situated between the 36th and 39th degrees

of north latitude, and between the 74th and
degrees of west longitude; and extending
two hundred and forty miles in length from
to south, and about one hundred and twe
breadth from east to west. It is bounded
north by the river Potowmac, which separ
from Maryland; on the east by the bay of C
peak; on the south by Carolina; and on the
by the Allegany mountains. Heat and cold,
here and in Maryland, are governed by the w
the north and north-west winds being com
cold and clear, but the south and east moist,
and very hot. The air is dry and clear in w
and, though the snow falls in great quantiti
seldom lies above a day or two. The chan
the weather are here sudden and violent;
winter frosts come on without the least war
and a warm day, in the beginning of winter,
quently succeeded by so intense a cold, as to
the rivers in one night; but the frosts and
though violent, are of short continuance.

The face of the country is so extremel
towards the sea, that, on coming within
fathoms soundings, land can scarcely be d
guished from the masthead. All this co
America has one remarkable particularity
distance being known by the soundings,
gradually diminishas you approach the land.
trees at first seem to rise out of the water, a
ing the stranger a very uncommon and ple
view. In sailing to Virginia or Maryland
pass a strait between two points called the
of Virginia, which opens a passage into the
Chesapeak, one of the largest and safest h
the world; for it enters the country nearly
hundred miles from the south to the north,

the eastern side of Maryland and a small p
of Virginia on the same peninsula. This b
is almost eighteen miles broad for a considerab
way, and seven, where it is narrowest; an
through its whole extent receives a great numbe
of fine navigable rivers, particularly James River
York River, the Rappahannoc, and the Potowmac.
The last mentioned river is nine miles broad at
its mouth, and navigable for near two hundred
miles. Towards the mouth of the rivers, the land
has a moist and fat mould, well stored with oaks,
poplars, pines, cedars, cypress, and sweet gums.
The country also produces great variety of ever-
greens. The trees grow to a prodigious height
before they shoot into branches; and the woods,
not being encumbered with shrubs and underwood,
so as to hinder their being travelled through on
horseback, afford a commodious shade to those who
pass through them. The heads of the rivers afford
a mixture of hills, valleys, and plains, adorned with
fruit and timber trees.

An author, born in Virginia, thus describes
the country: "Here the people enjoy all the
benefits of a warm sun, and by the shady groves
are protected from its inconveniences. Here
all their senses are entertained with an endless
succession of native pleasures. Their eyes are
delighted with the beauties of nature: their
ears serenaded with the perpetual murmur of
brooks, and the thorough base, which the wind
plays, when it wantons through the trees; the
gay birds join their pleasing notes to this
concert, especially the mock-birds, who
society so well, that, whenever they see
human beings, they will perch upon a twig
near them, and sing the sweetest wild airs

in the world; but, what is most remarkable in these melodious animals, they will frequently fly at small distances before a traveller, warbling out their notes for several miles, and by their music make a man forget the fatigues of his journey. The taste of the inhabitants is regaled with the most delicious fruits, which they have without art, in great variety and perfection; and their smell is refreshed with a perpetual fragrancy, with which nature perfumes and adorns the woods almost the year round. Have you pleasure in a garden? In the gardens all things thrive most surprisingly; and you cannot walk by a bed of flowers, but, besides the entertainment of their beauty, your eyes will be saluted with the charming colours of the humming-bird, which revels among the flowers, and sucks off the dew and honey from their tender leaves, on which it only feeds." This country produces all sorts of English grain; but the cultivation of tobacco employs the principal attention of the inhabitants.

North Carolina is situated between 34 and 36 degrees of north latitude, and between 1 and 16 degrees of west longitude, being bounded by Virginia on the north; by the Atlantic Ocean on the east; by South Carolina and Georgia on the south; and by the Mississippi on the west. This state in its whole width, for sixty miles from the sea, is a dead level, a considerable part of which lies in forest, and is barren. On the banks of some of the rivers, however, the land is very good; and through the other parts are interspersed glades of rich swamp, and ridges of oak land, of a black fertile soil. Wheat, barley, rye, oats, and flax are successfully cultivated in the back hilly

country, and Indian corn grows plentifully in
parts. Cotton is also cultivated here to consi
able advantage. In the western parts of the st
the air is serene for the greatest part of the ye
and the natives enjoy a much better state of heal
than those of the flat country. Though the da
in summer are excessively hot, the evenings a
cool and refreshing. Autumn is very pleasan
both with respect to the temperature and serenit
of the weather, and the richness and variety of th
vegetable productions which the season affords.
The winters, also, are frequently so mild, that
autumn may be said to continue till spring.

South Carolina is situated between 32 and 35
degrees of north latitude, and between 4 and
9 degrees of west longitude, being bounded on
the north by North Carolina, on the east by the
Atlantic; on the south by Savannah river which
divides it from Georgia; and on the west by
some unknown states. The whole state, to the
distance of eighty miles from the sea, is level, and
almost without a stone. In this distance, by a
gradual ascent from the coast, the land rises
about a hundred and ninety feet; and here com-
mences a curiously uneven country. "The tra-
veller," says Dr. Morse, "is constantly ascending
or descending little sand-hills, which nature seems
to have disunited in a frolic; for if a pretty high
sea were suddenly arrested, and transformed into
sand hills in the very form the waves existed at
the moment of transformation, it would present
the eye with just such a view as is here to be seen."
This curiosity continues for sixty miles, till you arrive
at a place called "The Ridge," a fine healthy belt
of land, extending from the Savannah to Broad
River. Beyond this ridge commences a country

exactly resembling the northern states; where h
and dales, with all their verdure and variega
beauties present themselves to view. Here h
ven has bestowed its blessings with a most boun
ous hand.—The air is much more temperate
healthy than nearer to the sea; the hills
covered with valuable woods; the valleys
watered by beautiful rivers; and the fertility
the soil is equal to every vegetable production.

The climate varies considerably in differ
parts of the state. Along the sea coast, bili
diseases and fevers of all kinds are prevalent
tween July and October. The probability of dy
is much greater between the 20th of June and
20th of October, than in the other eight month
the year. These diseases are said to result p
cipally from the exhalations of the stagnated
ters, the heavy fogs and dews, and an imprud
exposure to the night air. The upper coun
situated in the medium between heat and co
is as healthful as any part of the United State

Georgia, the most southern of the United Sta
is about six hundred miles long, and two hund
and fifty broad, being bounded on the north
South Carolina; on the east by the Atlantic Oce
on the south by Florida; and on the west by
Mississippi.—The eastern part of this state betw
the mountains, the ocean, and the Savannah ri
is a level tract of a hundred and twenty miles l
from north to south, and from forty to fifty bro
without a single hill or stone. About forty-
miles from the sea coast however, the lands be
to be uneven, ridges gradually rise into hills,
these swell into mountains, till, at length,
terminate in the Allegany mountains in N
York.

The winters in Georgia are very mild and pleasant; but the soil and its fertility are various, according to situation and improvements. The cultivated lands produce rice, indigo, cotton, Indian corn, potatoes, oranges, figs, &c. Rice is, at present, the staple commodity; but great attention is also paid to the cultivation of tobacco.

The Western Territory comprehends all that part of the United States which lies on the north west of the Ohio, being bounded by the Lakes on the north; by Pennsylvania on the east; by the Ohio river on the south; and by the Mississippi on the west.—Colonel Gordon, speaking of a much larger tract of country in which this is included, has the following observations. "The country on the Ohio is every where pleasant, with large level spots of rich land, and remarkably healthy. One general remark of this nature may suffice for the whole tract comprehended between the western skirts of the Allegany mountains; thence running south-westwardly for a distance of five hundred miles to the Ohio falls; then crossing them northerly to the heads of the rivers that empty themselves into the Ohio; and thence passing along the ridge that separates the lakes and the Ohio's streams, to French Creek. This country from a proper knowledge of it, may be justly stiled, the most healthy, the most pleasant, the most commodious, and most fertile spot of earth, known to the European people.

"The lands that feed the various streams above mentioned are now pretty accurately known, and may be described with accuracy and precision. They are interspersed with all the variety of soil which conduces to pleasantness of situation, and lays a foundation for the wealth of an agricul-

tural and manufacturing people. I
meadows, from twenty to fifty miles
every where found bordering the ri
riegating the country in the interior
afford as rich a soil as can be imagi
be reduced to proper cultivation wi
labour.

"Very little waste land is to be
part of this tract of country. T
swamps; and though the hills are pre
they are gentle and swelling, no wh
incapable of tillage. They are, for
of a deep rich soil, covered with a h
of timber, and well adapted to the
wheat, rye, indigo, tobacco, &c."

Vermont is about a hundred and fi
and about sixty broad; being bounde
on the north; by Connecticut rive
by Massachusetts on the south; and
on the west. The country is general
watered, and clothed with a profusio
pasturage. The heavy growth of t
is common throughout the state, evinc
and fertility of the soil. The wheat
cut off by the early frosts, particularly
rains; but potatoes, pumpkins and
vegetables are cultivated with succes

The climate of Vermont is remarl
Snow commonly begins to fall in t
of November, and is generally gone
of April. During this season, th
enjoy a serene sky and a keen c
at the return of spring, the snow
so gradually by the warm influence
that the earth is enriched and n
all the vegetable tribes come forw
ing quickness.

NEW BRITAIN is a large country of North America, called also *Terra Labrador*. It is bounded by Hudson's Bay on the north and west; by Canada and the river St. Lawrence on the south; and by the Atlantic Ocean on the east. The best description of this country that has ever been laid before the public, was drawn up by the commander of the Otter sloop, and communicated to the Royal Society by the Hon. D. Barrington, in 1774.

"This tract of land," says our author, "is extremely barren, and altogether incapable of cultivation. The surface is every where uneven, and covered with stones, some of which are of amazing dimensions. There are but few springs; yet throughout the country there are prodigious chains of lakes, or ponds, which are produced by the rains and the melting of the snow. There is here no such thing as level land; but the country consists entirely of frightful mountains and unfruitful valleys. The hills are almost devoid of every sort of herbage, and the valleys are full of crooked low trees, such as the different pines, spruce, birch, and a species of cedar. In a word, the whole country exhibits little besides a prodigious heap of barren rocks. The climate is extremely rigorous; for there is but little appearance of summer before the middle of July, and in September the approach of winter is very evident.

"The superficial appearance of this country is very unfavourable. But what may be hidden in its bowels we cannot pretend to suggest: probably it may produce some copper, as the rocks in many places are impregnated with an ore of that nature. Something of a horny substance, which is perfectly *transparent*, and which will scale out into a multitude of small sheets, is often found among the

stones, and, having been tried in fire, it see
be in no way affected by the heat."

CANADA, or the province of Quebec, is si
between forty-five and fifty-two degrees of
latitude, and between sixty-one and eigh
degrees of west longitude; being bounde
New Britain on the north; by the bay of St.
rence on the east; by Nova Scotia and the
States on the south; and by some unknown
on the west.

The climate of this country is not very di
from that of the northern British colonies;
it is much further from the sea, and more
northward, it has a much severer winter; t
the air is generally clear, and the summers
exceedingly pleasant. The soil in general is
and in many parts extremely fertile; produ
great variety of grain, fruits, and vegetables,
meadow grounds, which are well watered,
excellent grass, and breed vast numbers of
The uncultivated parts are a continued wood
wood of prodigiously large and lofty tr
which there is an immense variety.

NOVA SCOTIA, situated between forty
and forty-three degrees of north latitude, a
twixt sixty and sixty-seven degrees of west
tude, is bounded by the river St. Lawrence
north; by the Atlantic Ocean on the ea
south; and by Canada and New England

shments of art. Immense forests of lofty
ery where cover and adorn the land; their
falling in autumn, add continually to the
moss, vegetables, and decaying wood, that
n accumulating for many ages; whilst the
the sun, unable to penetrate the thick shade
very where covers the ground, leaves it in
tual state of damp and rottenness.

land, throughout the peninsula, is in no part
inous, but frequently rises into hills of gra-
cent, which are every where covered with
From these arise numerous springs and
, which not only fertilize the country, but
rmed in the midst of it, a large lake of fresh
The soil is, for the most part, very rich,
larly at a distance from the sea; and the
bound with very valuable trees.

country, like Canada, is subject to long and
s winters, and these are frequently succeed-
adden and violent heats; but the climate is
ounted unhealthy. The air, in winter, is
ly sharp, dry, and frosty, and the sky serene
clouded; by which every kind of exercise
l to the season, is rendered pleasant and in-
ing.—The winter commonly breaks up
eavy rains, and the inhabitants experience
ny of the delights of spring, which in many
f Europe is accounted the most agreeable
of the year.—From a lifeless appearance,
dreary scenes of winter wrapped around
etable world, the country is suddenly trans-
to a most animated and cheerful scene;
range as it may appear, it is an acknow-
fact, that these sudden changes seldom af-
health of the inhabitants, or even of strac-

FOSSILS.

THE Spanish dominions in North America abound with mines of gold and silver, especially the latter, of which precious metal it is said there are no less than a thousand mines in the Mexican empire; but many of these are not wrought, for want of native Spaniards and negroes. Mr. Coxe affirms, that Louisiana, has copper in abundance, and so fine that it is frequently found on the surface in pieces very pure without melting; and those who have tried the ore say, that by the common methods it yields above forty per cent. The lead-ore in that country affords sixty per cent. and has been already discovered in quantities more than sufficient for common use. Iron ore is also found plentifully in many places near the surface of the earth, from which a metal is extracted little inferior to steel in goodness. Some mines of quicksilver have likewise been discovered, and our author thinks many more might be found if proper search were made after them. The mineral from whence the quicksilver is obtained is of a scarlet or purple colour, which the natives make no other use of than to paint their faces and bodies with in time of war, or on occasions of festivals and rejoicings. This ore is broken and distilled in earthen pots, the necks whereof are put into others almost full of water, which last are placed in the ground; and being thus set in rows almost contiguous, a fire is made over them with small brush-wood, which drives the quicksilver out of the ore into the water. Three or four men will tend some thousands of these pots. The great trouble is in digging;

he expence does not amount to a tenth part of
value of the produce.

To make it appear probable that both gold and
er might be found in Louisiana, Mr. Coxe gives
ome accounts he received from persons of cre-
and particularly by letters from New Jersey,
tten by one well skilled in the refining of me-
, signifying, that for several years successively
an took a fancy to ramble with the Indians to
other side of the mountains on the back of New
k to the country we are speaking of, and always
ght home with him a bag, as heavy as he could
l carry, of dust, or rather small particles of va-
s sorts of metals, very ponderous. When
led, it appeared to be a mixture of metals, to
ch at first no denomination could be properly
gned; but by repeated trials they found it con-
ed lead, copper, and when refined, above a
d part of silver and gold. Great pains were
en to bring the man to discover where he got
treasure, which served him only to expend on
or till he went on another expedition; but no-
g could prevail upon him to declare any more
n this, that, about three hundred leagues south-
t of Jersey, at a certain season of the year,
e fell great torrents of water from the moun-
s, and, when they ceased, the Indians washed
sand or earth at some distance below those falls,
at the bottom remained that medley of metals.
Our author farther observes, that there are great
ntities of orpiment and sandarach in various
s of this province; and writers on metals and
erals affirm, that, they not only contain gold,
where they are found, they are generally the
ring of mines of gold or silver.

As to the gems of Louisiana, all that Mr. Coxe

knows of are amethysts, of which there are some very fine and large: and turquoises, thought to be as fine and large as any in the world. There is also an account of lapis lazuli, which, according to those skilled in mines, is another indication that gold is at no great distance.—But we need say no more of gems or metals in this place, having spoken of them sufficiently, as they occurred in the preceding parts of this work.

Under this head we may take notice of the filtre-stone of Mexico, which is said to grow under water on the rocks in some parts of the gulf of Mexico, and to harden and petrify spontaneously in the air; but Dr. Väter, who has given some account of it in the Philosophical Transactions, does not take upon him to determine either its origin, or the manner of its growth, both appearing to be very suspicious. It has obtained the name of filtre from its porosity, whereby it lets liquors pass through it; and for this reason pots and mortars are made from large pieces of it, to strain liquors, particularly water to drink; for it is thought that water filtrated through this stone is thereby freed from all its impurities, and becomes more wholesome. "This is the reason," says the doctor, "that these stones are highly valued in Japan, and sold at the price of gold; because the Japanese, who know nothing of the stone or other disorders in the kidneys, and who prefer health far above all other blessings, think the filtration of their drink contributes to the prolonging of life." But, according to Le Clerc and other writers, these tophaceous stones are not confined to Mexico, but dug up in several parts of Europe; and our author had a choice collection of fossils presented to him by Dr. Ehrhart of Hannington, in which there was a tophus pec-

larly porous, found about that city, which would strongly imbibe water, as soon as applied to its surface. However, whether the Mexican filtre be taken out of the sea, or dug out of the earth, Dr. Vater does not pretend to determine, as has been already intimated.

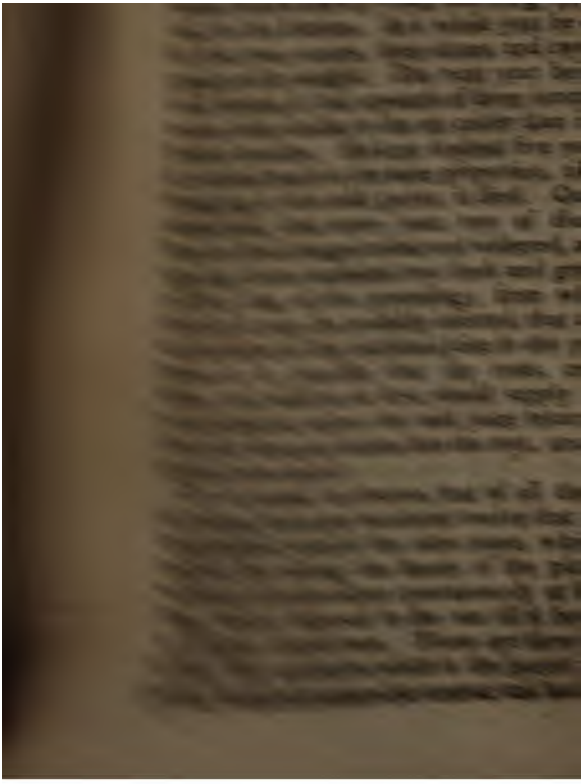
With respect to the virtue ascribed to the Mexican filtre-stone, our author, from several observations and experiments, makes it evident, that no stone-filters are able to depurate water, and separate the saline earthy and mineral impurities therein dissolved: yet he does not deny, but that muddy and slimy waters may by straining through such stones become more clear and pellucid; because these impurities do not dissolve in the water, or intimately incorporate with it, but only float therein. These excepted, no other waters can be made purer, as the doctor learnt from repeated experiments, made both by the filtre of Holland, the tophus of hot baths, and common stone, on several kinds of river and spring water; for, having examined their weight before and after filtration, he found little or no difference. "How happy therefore," observes he, "are the countries to which Providence has given limpid and wholesome springs of water, which require no such filtres! But, as for those that are deprived of this blessing, the best they can do is to use rain-water, which by distillation is freed from all its impurities."

We have already in several places taken notice of the extraneous fossils that are found in different parts of the world, and particularly of the bed of oyster-shells near Reading, in Berkshire; but this seems trifling, compared to the accounts we have of the vast quantities of these shells found in Virginia, where for many miles together the earth is

intermixed with them to the depth of several y
In some places the shells lie closely bedded
ther, and look like the veins of a rock, of w
some are three or four yards thick, and as ha
free-stone. Of these rocks of oyster-shells, v
are not so much petrified, they burn and ma
their lime; and in the looser banks of shell
earth there are often found perfect teeth poi
some of which are two or three inches long,
above an inch broad, the part that one may
pose to have grown out of the jaw being poli
and almost as black as jet. The back-bone
ribs of whales (according to Mr. Clayton) hav
been dug up many miles distant from the se
But this subject having been sufficiently no
in the preceding parts of this work, we shal
enlarge upon it here. We may add, however
particular relating to Virginia which is ver
markable, viz. that, from the sea-coast for a
dred miles up into the country, there is scarc
stone to be seen, except here and there some
of iron ore; so that they ride their horses wi
shoeing them, and, the country and climate
dry, their hoofs are harder than those of our h
in England. Instead of stones they find a cl
which they make very fine bricks; and it is
observed, that, at the water-falls from the m
tains, there are stones enough of different kin
for paving and other uses. The hills likewi
ford quarries of slate and of a kind of free-st
and they have also a sort of shining pebbles
unlike kerry-stones, which, though generally
are said to harden by the air, and, when poli
are extremely beautiful.

VEGETABLES.

THE ancients seem to have been acquainted with only one species of the aloe, but the researches of modern travellers in Asia, Africa, and America, have occasioned the discovery of at least forty sorts unknown to antiquity; nay, Mr. Bradley assures us, that he has seen above sixty several kinds in the physic-garden at Amsterdam. Our present design, however, is only to describe the American aloe, which is one of the most curious and remarkable plants of all the numerous species. The aloe plant has very thick green leaves, broad towards the root and tapering to a point, stiff and prickly, and yielding a kind of cotton, of which laces may be made. From the midst of the leaves rises a stem, which bears the flowers and fruit. The flowers grow at the ends of branches that shoot out opposite to each other; and each consists but of one leaf, cut into six segments at the top like a hyacinth. The fruit is oblong and cylindrical, divided into three cells, in which are contained flat and, for the most part, semicircular seeds. Most of the African sorts produce flowers with us annually, when grown to a sufficient size; but the American aloe, which most commonly produces its flower-stem immediately from the centre of the plant, seldom flowers till it be of a great age, and this but once during the life of the plant; so that to have one flower in England is reckoned a curiosity, and generally draws a vast number of spectators. It is observed, that, when the flower-stem, which is usually large and grows to a great height, begins to shoot from the middle of the plant, it draws all the nourishment from the leaves; so that, as the stem



the cabaline or horse-aloes, which is the most impure, blackest and strongest of all, and is of little use but for horses and cattle. Whether these are all procured from the same plant, or from different species of it, authors are not rightly agreed.—The best aloes is that which is pinguious, of a dark colour, in some measure friable, its smell resembling that of myrrh, and which when pounded yields a powder of a golden colour. In consequence of its bitterness, it is called the gall of nature; and this makes it so nauseous, that it is rarely used in liquid forms, but made up into pills. It consists of two substances, one resinous, which may be extracted by spirit of wine; the other of a gummy nature, which may be dissolved in water. Its balsamic quality is so great, that animalcules may be preserved in it for ages; and upon this account it is used in embalming human bodies. Its cathartic virtue is best employed in watery cold constitutions, and such as are disposed to the generation of acids. The succotrine aloes is preferable for internal uses, and the hepatic for external.

Amongst the vegetables of America, one of the first we ought to mention is the celebrated plant we call tobacco, which is now grown into such general use in Europe, and makes one of the most profitable branches of the English commerce. The Virginia tobacco, especially the sweet-scented, which grows on York River, is reckoned the best in the world, and is generally vended in England for home consumption; but the hotter sorts, either of Virginia or Maryland, turn to as good account, being demanded in Holland, Denmark, Sweden, and Germany. Mr. Clayton says, that the sweet-scented tobacco, which grows on sandy land, is

best for smoking whilst new, or only two or three years old; but, if the stiff land tobacco, which is generally of a good substance, be kept five or six years, it will much exceed the former.

The manner of planting and ordering tobacco is this: The seed is first sown in beds of fine mould, and, when the plants are risen to a convenient height, they are transplanted to little hills, three or four feet from each other, somewhat in the manner of hop-grounds. This is done about the beginning of May, from which time the hills are kept continually weeded, and, when the plants have put forth such a number of leaves as they think the soil will nourish to a sufficient substance and largeness, they take off the top of each plant, which after that grows no higher. If the ground be rich, they let a plant put forth twelve or fifteen leaves before they top it; if poor, not above nine or ten; and so in proportion to the goodness of the soil. The suckers which the plant puts forth between the leaves are taken off once a week till it comes to perfection, which it does in August. Then in dry weather, when there is a gentle breeze of wind, they cut down what is ripe, letting it lie three or four hours on the ground; after which they carry it on their shoulders to the tobacco-houses, or sheds, where a peg is driven into the stalk of each plant; and by these pegs the plants are hung up to dry, so near each other that they just touch. Thus they let them hang for five or six weeks, till such time as the stem in the middle of the leaf will break in bending it; and, when the air has so moistened the leaves that they may be handled without breaking, they strip them off the stalks, tie them in little bundles, *pack them* up in hogsheads for exportation.

sometimes the planters are obliged to plant their hills twice or thrice over, on account of an earth-worm which eats the root; and, when the plants are well grown, they often suffer damage by another worm called a horn-worm, which is bred upon the leaves, and if not carefully taken off, will spoil a whole crop. The plants, when young, are also sometimes destroyed by a small fly, which breeds upon them in gleamy weather; and they are likewise subject to a distemper they call firing, which happens when very hot weather suddenly follows a wet and cold season, at which time the leaves of the young plants turn brown and are dried to powder. Another fault is when the leaves do not spread and grow large, but rather spire upwards and grow tall; and such plants as these they call Frenchmen.

Tobacco is narcotic, emetic, and cathartic to such a degree, that the internal use of it is seldom or never to be allowed, though a water distilled from the green leaves is much recommended for dissolving stones in the urinary passages. Some people use an infusion of tobacco as an emetic; but it is a dangerous and unjustifiable practice, as it is apt to produce violent vomitings, sickness, and stupidity. A strong decoction of the stalks, with sharp pointed dock and alum, is reckoned of good service, used externally, in cutaneous distempers, for which purpose some boil them in *urine*; and the same is said to be an infallible re-

medy for the mange in dogs. The juice
bacco is recommended to preserve the teet
gums, and to cure the tooth-ach; for whic
purpose the chymical oil of tobacco, dropp
lint and applied to the tooth, has been of ser
but people should be very cautious how th
this oil, which is so strong, that a drop o
of it put on the tongue of a cat produce
lent convulsions, and death itself in the sp
a minute.

Among the shrubs of California is one
pitahaya, which is said to be peculiar to th
ninsula; its branches are finely fluted, an
vertically from the stem, so as to form
beautiful top; yet it bears no leaves, the
growing on the boughs, without shade or
It resembles a horse chesnut, but contains a
which has some resemblance to that of a f
some it is white, in others yellow, and some
red; but always exquisitely delicious, being
sweet, tempered with a grateful acid. Th
ninsula has likewise most of the fruits to be
in other parts of America.

Another very remarkable vegetable of
America is the poison-wood-tree, which gro
New England in swamps or low wet gro
and is described by Mr. Dudley as like a su
which it exactly resembles in its twigs, l
and shape, so that some call it the swamp sum
and it likewise bears a dry berry. It never
bigger than about the thickness of a man's
and as tall as an alder; but it spreads consi
bly, and several grow together, especially
the roots of one that has been cut down.
inside of the wood is yellow, and very
juice, which is as glutinous as honey or tu

line, and smells extremely fetid; and the wood itself has a very strong disagreeable smell.—As to its poisonous quality, our author observes, that it poisons two ways, either by the touch or by the smell; the scent of it, when cut down in the woods, or burning in the fire, being poisonous to a great degree. One of Mr. Dudley's neighbours was blind for above a week with only handling it; and a gentleman, sitting by his fireside in the winter, was swelled for several days with the smoke of some of this wood that happened to be in the fire. But, what is strange, it has this effect only on some particular persons and constitutions, for Mr. Dudley has seen his own brother not only handle it, but chew it without any harm at all; and so by the same fire one has been poisoned, and another not in the least affected. However, this sort of poison is never mortal, but will go off in a few days of itself; though generally the patient applies plantain-water, or sallad-oil and cream. A few hours after a person is poisoned, he feels an itching pain, which is soon followed by an inflammation and swelling. The wood is as cold as ice, as Mr. Dudley's neighbour that was poisoned told him, so that he plainly perceived it differed from the other wood he was throwing up into his cart; and he assured him he could distinguish it blindfold, or in the dark, from any other wood, by its excessive coldness.

As we are now speaking of New England, it seems proper to add some other observations of Mr. Dudley on the vegetables of that country, and particularly on the Indian corn or maize, which is the most prolific grain they have, commonly producing twelve hundred grains from one

[illegible] two thousand. "But the fairest [illegible]," says our author, "is this: Six [illegible] of this grain will plant an acre of ground [illegible] is not unusual for an acre of good gro[illegible] produce fifty bushels of corn."

The fecundity of various plants is very su[illegible]ing. We have an account in the Philoso[illegible] Transactions of a single plant of barley, th[illegible] steeping and watering it with salt-petre diss[illegible] in water, produced two hundred and forty [illegible] stalks and eighteen thousand grains. In this [illegible] indeed, art and force were made use of, bu[illegible] have remarkable instances of this kind, eff[illegible] by unassisted nature, particularly that of a [illegible] pion-seed, attested by Mr. Edwards of Wi[illegible] This seed, in the year 1699, was accide[illegible] dropped in a small pasture, where cattle had [illegible] foddered for some time; and taking root of [illegible] without any manner of care, the vine ran [illegible] over several fences, and spread over a large [illegible] of ground far and wide, continuing its pro[illegible] till it was killed by the frost. The seed prod[illegible] no more than one stalk, but it was a very [illegible] one, being eight inches round; and from [illegible] single vine they gathered two hundred and [illegible] pompions, one with another as big as a half [illegible] besides a considerable number of small one[illegible] ripe, which they left upon the vine. A[illegible] this what M. Dodart observes, who has a[illegible] [illegible] discourse on the fecundity of plants i[illegible] [illegible] of the Academy of Sciences, where [illegible] that an elm, at a moderate comput[illegible] [illegible] the year with another three hundred [illegible] nine thousand grains or seeds; ea[illegible] [illegible] if properly planted, would grow up [illegible] [illegible] an elm ordinarily lives a bu[illegible]

years, and consequently, in the course of its life, produces near thirty-three millions of grains, all coming originally from one single seed. But instances of this fecundity need not be multiplied, being obvious to every one's observation, who has paid the least regard to the wonders of nature.

Indian corn is very remarkable on account of its variety of colours, as blue, white, black, red, yellow, greenish, speckled, striped, &c. and, it is a singular fact, that if any one sort be planted separately, so that no other sort be near it, it will retain its own colour; but if in the same field you plant the blue corn in one row of hills (as they are called) and the white or yellow in the next row, they will mix and interchange colours; that is, some of the ears in the blue corn rows shall be white or yellow, and some in the white or yellow rows shall be blue. The little hills of Indian corn are generally four or five feet asunder, and continued regularly in straight lines, something in the manner of a hop-ground; and yet this mixing and interchanging of colours has been observed when the rows of hills have been several yards distant from each other: Mr. Dudley was even assured that this interchange has been made at the distance of four or five roods, and particularly in a place where there was a broad ditch of water between the two different sorts of grain; so that the mixture cannot be owing to the roots and small fibres reaching to and communicating with each other, as some have imagined. Our author, therefore, is of opinion, that the stamina or principles of this surprising commixture of colours are conveyed by the wind, and that the season of it is *when the corn* is caring, and while the milk is in

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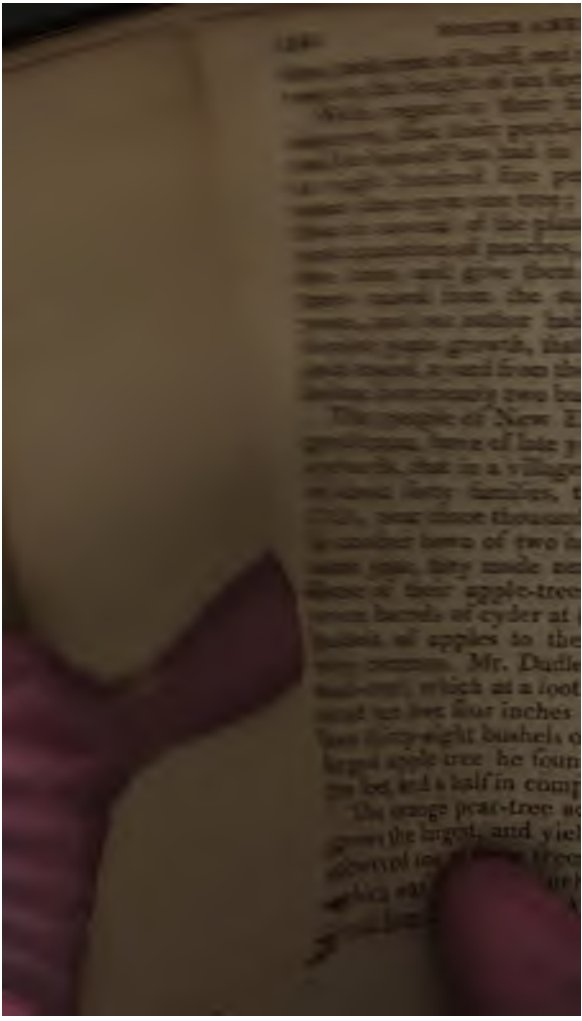
the grain; for at that time it is in a sort of effusion, and emits a strong scent. What confirms this hypothesis, of the air being the medium of this communication of colours in the corn, is an observation of one of Mr. Dudley's neighbours, viz. that a close high fence of boards between two fields of corn, that were of a different colour, entirely prevented any mixture or alteration.

Mr. Winthrop describes the ear of the Indian corn as generally about a span long, consisting of several rows of grain commonly eight or more, according to the goodness of the soil, and each row containing above thirty grains. The white and yellow sorts are the most common; but he observes, that, not only in the same field, but even in the same ear, the grains are sometimes of different colours. The ear is clothed and armed with several strong husks, which not only defend it from unseasonable rains, and from the night-colds, (it being the latter end of September before it is fully ripe in some parts) but also from crows, starlings, and other birds. Its stalk grows to the height of six or eight feet, more or less, according to the condition of the soil, or the kind of the seed

The maize of Virginia grows taller than that of New England, and there is a sort used by the northern Indians farther up the country, which is much shorter. It is always jointed like a cane, is full of a sweet juice, and at every joint grow long leaves almost like flags, and at top a bunch of flowers like the blossom of rye. The manner of planting this Indian wheat is in rows at equal distances every way, as has been already mentioned; and, when the corn is grown up to a proper height, they cut up the weeds and loosen the earth about it with a broad hoe, repeating this labour

ften as the growth of the weeds makes it ne-
ary. When the stalk begins to grow high,
draw a little earth about it; and, upon the
ing forth of the ear, they scrape up as much
will make a little hill like a hop-hill; after
ch they give themselves no farther trouble
it it till harvest. This culture is all done with
hoe, but the Europeans have now taken a bet-
way of planting. With the plough they make
le furrows through the whole field at the dis-
e of six feet, or as they see convenient; and
ese they make cross furrows at the same dis-
e. Where these furrows intersect each other,
throw in the corn, and cover it either with
hoe, or by running another furrow with the
gh. When the weeds begin to over-top the
, they plough the rest of the field between the
ted furrows, and so turn in the weeds. This
peated when they begin to hill the corn with
hoe, and thus the ground is loosened, and the
s have liberty to spread. The husks that grow
t the ear of this corn the Indian women slit
narrow slips, and weave them curiously into
ets of several fashions.

mong the numerous vegetables of New Eng-
, Mr. Dudley mentions a platanus or button-
d-tree, as it is there called, which was nine
s round, and held that bigness a great way
and this tree, when cut down, made twenty-
cords of wood, as our author was informed.
tree he often propagated by cutting of sticks
or six feet long, and setting them a foot deep
e ground in the spring of the year, when the
on is wet; and this and the locust-tree are
rkable for their quick and easy growth. A
of the latter, blown off into our author's gar-



stance of an apple-tree in an orchard, which bore a considerable quantity of apples, especially every other year, and yet never had a blossom. For three years he went in the proper season and observed it; and, when all the rest of the orchard was in bloom, he could not see one single blossom upon this tree. Not contented with once going, he went again and again, till he found the young apples perfectly formed. One year he took notice of it early, not knowing but it might blow sooner than the other trees; but he found no blossoms: And the owner, with several of his neighbours, assured Mr. Dudley they had known the tree upwards of forty years, and that it never had any blossom. Our author opened several of the apples, and found very few seeds in them, some of which were lodged singly in the side of the apple.

Mr. Glover, who has given some account of Virginia in the Philosophical Transactions, observes that fruit-trees are very numerous in that country:

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den, took root of itself, and in less than tw
rose to the height of six feet.

With regard to their fruit trees Mr.
observes, that their peach-trees are all sta
and he himself has had in his own garde
or eight hundred fine peaches growing
same time upon one tree; to which we m
that in several of the plantations they ha
vast quantities of peaches, that they beat t
the trees and give them to their hogs.
trees raised from the stone will bear i
years, and our author had one in his ga
twelve years growth, that measured two
inch round, a yard from the ground, and tw
before bore nearly two bushels of fine pea

The people of New England, says th
gentleman, have of late years run so muc
orchards, that in a village near Boston, co
of about forty families, they made, in t
1721, near three thousand barrels of cyde
in another town of two hundred families,
same year, they made near ten thousand
Some of their apple-trees will yield six
seven barrels of cyder at the rate of eight
bushels of apples to the barrel; but thi
very common. Mr. Dudley has seen a fin
main-tree, which at a foot from the ground
sured ten feet four inches round, and in on
bore thirty-eight bushels of excellent fruit
largest apple-tree he found in that count
ten feet and a half in compass.

The orange pear-tree according to our
grows the largest, and yields the fairest fru
erved one of these trees near forty fee
was six feet six inches in circumfer
from the ground, and bore thirty bush

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make a drink of the juice of quinces; and have also apricots, and some sorts of plumbs, but these do not ripen so kindly as in land. The few pears they have are large pleasant, and figs grow there as good as in but it is remarkable that neither oranges nor mons will thrive there, though they will in northerly countries. Cherries are as plenti over Virginia as they are in Kent, and the are generally larger than in England, and more plentifully, without digging about the pruning. The woods abound in vines, twine about the oaks and poplars, and run the tops. These bear a kind of red grape wine whereof is smaller than French claret; is probable, that, if some of them were plan convenient vineyards, where they might be exposed to the influence of the sun, and ca kept and pruned, they would produce as grapes as the claret-grapes of France. T also in the woods a little shrub with a ber that of our elder, which has a very pleasant and likewise a tree called chincopin, which a nut resembling a chesnut, with a rough hus much smaller.

On the sides of the hills in Virginia grows fully a species of asarum, or black snake the roots whereof are brought over amon true serpentaria Virginiana, and are promisc used with them. Soldanella, or sea scurvy found in great plenty on the side of the herb, being excellently calculated fo ing water, contributes very much to th gipsies and scurvies; and it is likewis *matic* cases. It works very roughly *disorders* the stomach.—There g

excellent remedy against worms, and an ounce of it is sufficient to provoke a profuse perspiration.—Here are also found two roots, supposed by the physicians to be turbith and mechoacan, both strong cathartics. Turbith purges tough serous humours from the remote parts, and is therefore of service in the dropsy, gout and rheumatism. The root of mechoacan is used to carry off pituitous, serous, and aqueous humours from all parts of the body, especially from the breast, and the head and nervous system. That is to be chosen which is recent, white, and ponderous.

Our author takes notice of another medicinal plant about a foot and a half or two feet high, whose leaves are rugged like those of borage, but longer, and it's berries when ripe are yellow. The English call it the fever or ague-root, from it's service in those distempers. A dram and a half of this root newly taken out of the ground, and infused in beer and water for twelve hours, operates

amongst us it has obtained the name
wood, its smell somewhat resembling th
nel. It is principally of use in removin
tions and strengthening the internal pa
reckoned a sovereign remedy for catar
esteemed in the gout, sciatica, &c. Th
safras is that covered with the thickest
dish and rough, of a sharp taste, and s
matic smell.

In New Spain, and several other part
rica, grow those seeds we call vanelloes,
las, which are used as an ingredient in
to which they give a pleasant flavour;
are also used to perfume snuff and
We do not find that they enter into any
composition, though Hernandez says
grateful to the stomach and brain, expel
sist poison, and cure the bites of venomo

Upon the bark of a certain tree g
Nova Scotia, and the more easterly par
England, Mr. Winthrop says there are l
containing a liquid matter like turpentine
healing nature. The same gentleman
vegetable called silk-grass, whose pods a
sort of fine cotton, which is used in stuffi
and cushions. At the bottom of some of
there is a hollow knob, breeding a smal
what like an ant.

The tulip tree is a native of most part
rica, and is too curious to be passed over
—It rises with a large upright trunk,
forty or fifty feet high, and covered wi
bark. The branches of the two-years-old
smooth and brown; while the bark of the
shoots is smoother and shining, and of a
The young wood is green, pithy

broken emits a strong scent. The leaves, which grow irregularly on the branches, are of a particular structure, being composed of three lobes, the middlemost of which is shortened in such a manner, that it appears as if it had been cut off and hollowed at the middle; the others are rounded off, and are of two colours, their upper surface being smooth, and of a stronger green than the lower. They fall off early in autumn; and the buds for the next year's shoots soon afterward begin to swell and become dilated, so that, by the end of December, those at the ends of the branches will become nearly an inch long, and half an inch broad.—The flowers are produced at the ends of the branches and nearly resemble the tulip, which has occasioned the name of the *tulip tree*. The number of petals of which each is composed, like those of the tulip, is six; and these are prettily spotted with green, red, white, and yellow. The flowers are succeeded by large cones.

In those parts of America where it grows naturally, the tulip-tree affords excellent timber for many uses; particularly the trunk is frequently hollowed, and made into a canoe sufficient to carry several people; and for this purpose the inhabitants think no tree more proper.—This tree is cultivated with tolerable success in many parts of Europe, and when the seeds are good, its propagation is very easy.

ANIMALS.

WE cannot begin this article more properly than with the moose-deer, which is thought to be

peculiar to North America, and is one of t
blest creatures of the forest. These anim
found no where in greater numbers than i
England, and Mr. Dudley informs us the
two sorts of them, viz. the common ligh
moose, and the large or black moose.
former, which the Indians call wampoos
somewhat like the ordinary deer, sprin
them, and herd sometimes to the number o
together. The black moose, whose hair i
grey, is shaped much like the common deer
the hoof, chews the cud, and has no gall
ears are large and erect, and he has a very
bob-tail. These deer are less gregarious
above four or five being found together.
hunters in New England have sometimes t
buck or stag-moose of the black kind, ten fe
a half in height from the withers, and a qua
this venison has weighed upwards of two
dred pounds. A black moose doe or hind
fourth year was killed within two miles of
which from the nose to the tail measured be
ten and eleven feet, and was six feet eleven
high.

The horns of the moose, when full grow
between four and five feet from the head to t
each horn having seven shoots or branche
they generally spread about six feet. Wh
horns, which are shed every year, first co
of the head, they are round like those of
but about a foot from the head they begin t
a palm broad, and higher up still broader,
the Indians make ladles of them that will
nt. When a moose goes through a thic
er the boughs of trees, he lays his horn
his neck, not only that he may make b

the easier, but to prevent his being scratched or hurt by the wood. A moose does not spring, or rise in going, as a common deer, but rather pushes along side-ways; and when he is unharboured, he will run a course of twenty or thirty miles before he turns about or comes to a bay. He is not so swift as the common deer, but will run longer; and, when chased, he usually takes to the water. One of these large black mooses has been seen, in his common walking, to step over a gate five feet high.

The flesh of the moose is excellent food, and, though it be not so delicious as common venison, it is more substantial, and will bear salting. The nose of the animal in particular is reckoned a great dainty; and Mr. Dudley who ate several of them, says he found them to be as rich as marrow. The skin of the moose well dressed makes excellent buff, and the Indians make their shoes of it for travelling in the snow. Their way of dressing it is this: After they have haired and grained the hide, they make a lather of the moose's brains in warm water; and, after soaking the hide for some time, they stretch and supple it. Nor are the flesh and skin of the black moose the only parts of it that are serviceable, for even the hair on the ridge of the back, which is ten or twelve inches long, is made into good belts by the Indians.—A moose generally brings forth two young ones, which it is said to do standing, and the young fall from the dam upon their feet.

These creatures, being very tall, and having short necks, do not graze on the ground like the common deer, horses, cows, &c. and, if at any time they eat grass, it is the top of that which grows very tall, or on the side of a rising ground.

In summer they feed on plants, herbs, and yo
shrubs that grow on the land, but are most fon
water-plants, especially a sort of wild colt
and lilly, which abounds in ponds and by the s
of the rivers. For this food they will wade far
deep, and it is by the noise they make in the
ter that the hunters often discover them. In
winter they live by browzing the tops of bu
and young trees; and, being very strong, as
as tall, they will bend down a tree as thick
man's leg. When the browze fails them
will eat off the bark of some sort of trees as
as they can reach. They generally feed in
night, and lie still in the day.

To this account of the American moose-de
may be proper to add an observation of Dr.
Lyneux in the Philosophical Transactions,
there describes a large pair of deer's horns du
in Ireland, which from the tip of the one to th
the other were ten feet ten inches wide. T
horns he doubts not belonged to a moose;
from the number of them found in several par
Ireland, he concludes that these majestic deer
formerly as frequent in that country, as they
now in New England, Maryland, and Virgini

The Mexican musk hog, so called from its s
is a very remarkable animal, found not onl
New Spain, but in several other parts of
American continent. Dr. Tyson had one w
he had the curiosity to dissect, and he describ
as much less than our common hogs; for, from
end of the body where the tail should be, to
top of the head between the ears, it measured
feet two inches, and from thence to the e
of the snout eleven inches. The com
body was two feet, that of the neck six

inches; of the head in the largest place eighteen inches; and of the snout twelve inches; for the lower jaw was more protuberant, and the head less tapering than in our swine. Its body was of a grizzly colour, and beset with bristles, which were thicker than those of a hog, but resembling the quills of a porcupine, and variegated with rings of black and white. The belly was almost bare, and the bristles on the sides were short, but gradually increased in length as they approached the ridge of the back, where some were five inches long. On the head between the ears there was a large tuft of these bristles, which were mostly black. The ears were about two inches and a half long, and the eyes, like those of pigs, were small. The snout was like that of a hog, but the mouth small; and one side of the lower lip was made smooth by the rubbing of the tusk in the upper jaw. The feet and claws were perfectly like those of common hogs. It had no tail, but its greatest peculiarity, and what distinguishes it from any other animal, is the navel or rather foramen on the hinder part of the back.

These animals are usually found in the woods and mountains, and go in herds together. They feed on roots, and fruits; but as the greatest dainty they hunt after all manner of serpents and toads, and, having caught them, they hold them with their fore feet, and with a great deal of dexterity strip off the skin with their teeth from the head to the tail, and then greedily devour them. As an antidote against the poison, they are said to eat the bark of a certain tree; and by this sort of food they thrive and become fat. They are naturally very fierce; and, if one of them be wounded, he presently gets to his assistance a great number of his

kind, and never desists till he has revenged injury.

They are always at enmity with the tygers, oftentimes the body of a tyger and several of t hogs are found dead together. If they perce man, they will attack him fiercely, and his bes fuge is to get up a tree, which they will as most furiously with their teeth; nor will they e leave him till they are called off by hur When they are hunted they often tear the do pieces. Their flesh is esteemed very good, a highly valued by the natives.

The peculiarity above-mentioned, called navel, seems to require a little closer observa It is situated just on the ridge of the back ove hinder legs, and is so covered by the long bri there, that it cannot be seen without separa them, and then appears a small space al bare, only beset with fewer, shorter, and hairs. In the middle of it is the orifice of gland, by which it discharges itself of the liqu separates; and this orifice has its lips a little flected and protuberant above the surface o skin. Dr. Tyson found it would easily admit large probe, which could be turned into se parts of the gland; and, upon a gentle pre with the fingers, it emitted a small quantity yellowish juice, which yielded a very agre scent, much like that of musk or civet. This g is of the conglomerate kind, consisting of se other minute glands. It has no considerabl ity within it, but has several excretory d which, terminating at last in one, discharges it ressed juice by a common orifice. This or having some resemblance to a navel, has imp on almost every author that has written o al, so far that they have taken it for a re

l; and others, who have not fallen into this sen-
ient, have proposed conjectures about it full as
surd and extravagant; but there is nothing, ac-
rding to Dr. Tyson, to which it can be more
y compared than to the scent-bags in other ani-
ls.

We have already given some account of the
ver, and of its bags or purses containing a liquid
tter called castoreum, of considerable use in
dicine *; but there are some other surprising
rticulars related of these animals, which we
mised to take notice of when we came to Ca-
da, which country abounds with them more than
y other part of the world. In the memoirs of
Royal Academy of Sciences there is an extract
a letter from M. Sarrasin, formerly the French
g's physician in Canada, concerning the dissec-
n of a beaver. He says the largest are three or
r feet long, and about twelve or fifteen inches
ad in the chest and haunches; that they com-
nly weigh about fifty pounds; and that they
ually live to the age of twenty years: but Fran-
says, they live thirty or forty years, and that he
heard of a tame one being kept seventy-eight
rs. Dr. Sarrasin says farther, that a great way
th the beavers are very black, though there are
e white; but those of Canada are commonly
wn, and their colour grows lighter as they are
nd in more southern countries.

These creatures observe a wonderful polity, and
r manner of living and building their habitati-
shows an extraordinary instinct implanted in
n by the great Author of nature. In order to
e themselves a convenient abode, they chuse a

* See Vol. III. page 80.

low level ground, watered with a small rivulet, where, by making dams across it, they can form a reservoir of water and overflow the ground. These dams or causeys are formed by thrusting stakes five or six feet long, and as thick as a man's arm, deep into the earth; and these they wattle across with tender pliable boughs, and fill up the spaces with clay, making a slope on the side against which the water presses, and leaving the other perpendicular. One of these dikes may be ten or twelve feet thick at the foundation, and they raise it in height proportionably to the water's elevation. As they are sensible that materials for building are not so easily transported by land as by water, they take the opportunity of swimming, whenever they can, with clay placed on their tails, and stakes of wood between their teeth, to every place where those materials are wanted. If the violence of the water, or the footsteps of the hunters who pass over the work, should damage it in any degree, they immediately visit all the edifice, and with indefatigable application repair and adjust whatever they find out of order: but, if they are too frequently disturbed by the hunters, they only work in the night, or else discontinue their labours.

When the beavers have completed their causey or dike, they begin to form their cells, which are round or oval apartments, divided into three partitions or stories, raised one above another. The first is sunk below the level of the dike, and is generally full of water; the other two are formed above it. The walls of these house are upright, and about two feet thick; and they are always [illegible] in stories, that in case the water rises, the [illegible] may retire to a higher situation. The [illegible] *are the* same as they use for the dike;

and, as their teeth supply the place of saws, they cut off all projections that shoot out from the stakes beyond the perpendicular of the wall: after which they work up a mixture of clay and dry grass into a kind of mortar, and by means of their tails lay it over the building both within and without. They likewise drive stakes into the earth to fortify the structure against the winds and water; and at the bottom they strike out two openings to the stream, one of which leads to the place where they bathe, and the other is a passage to that quarter where they carry out every thing that would rot or defile the upper apartments. There is a third aperture much higher, calculated to prevent their being shut up when the ice has closed the openings into the lower lodgments.

The dimensions of these houses are proportioned to the number of the intended inhabitants, twelve feet in length and ten in breadth being found sufficient for eight or ten beavers; and, if the number increases, they enlarge the building accordingly. It has been asserted, that there have been found above four hundred of these creatures in different apartments communicating with one another; but these populous societies are very rare, because they are two unmanageable, and the beavers are generally better acquainted with their own interests. They associate to the number of ten or twelve, and sometimes a few more, and so pass the winter together in a very agreeable manner.

There are some beavers called terriers, which burrow in the earth, beginning their hole at such a depth under water as they are sensible it will not freeze at; and this they carry on for five or six feet, just large enough for them to creep through. Then they make a bathing-place three or four feet square

from whence they continue the burrow, always ascending by stories, that they may lodge dry as the water rises. Some of these burrows have been found to be a hundred feet in length.—This is Dr. Sarrasin's account of the terriers, but others say they begin their burrow on the land, and having dug downwards to a proper depth, they then dig horizontally till they come to the water.

The beavers of Canada have generally completed all their works in August or September, after which they furnish themselves with provisions for the winter. During the summer they regale themselves with all the fruits, plants, and roots, the country produces; but against winter they lay up a stock of wood, which they feed upon after steeping it in water, and this in quantities proportionable to their necessary consumption. They gnaw off twigs and branches from the trees, of which the large ones are conveyed to the magazine by several beavers, and the smaller by a single one; and it is observed that they take different ways, each having his walk assigned him, that they may not interrupt one another in their labour. The dimensions of their pile of wood are regulated in proportion to their numbers, and we are told that one of twenty-five or thirty feet square, and eight or ten feet high, is the usual provision for eight or ten beavers. When the wood is soaked in water, they gnaw it into small pieces, and convey it to their cells, where it is regularly divided amongst them. Sometimes they wander about in the woods, and regale themselves and their young with a fresh collation: for they love green wood better than that which is old and withered: and [illegible] sensible of this, place a parcel of the [illegible] about their habitations, and then have se-

veral devices to ensnare them. When the winter is severe, and the water frozen over, the hunters sometimes break the ice; and, when the beavers come to the opening for the benefit of the fresh air, they kill them with hatchets; or else they cover the aperture with a strong net, and then overturn their lodge, upon which the poor animals, thinking to escape by betaking themselves to the water, and emerging at the hole in the ice, fall into the snare and are taken.—Many other things are related concerning the sagacity and industry of these creatures, the strength and beauty of their little cities, of the wars which one canton wages against another, and of their putting the most laborious part of their work upon those they take prisoners, &c.

There is another animal common in several parts of America, called a musk-rat, which is exactly shaped like our water-rat, only somewhat larger. These creatures build houses as the beavers do, in marshes by the water-side, with two or three ways to them; and the inside of them is neatly plastered. They consist of three stories, so that the rats ascend from one into the other as the water rises. In short, they are in all respects beavers in miniature, and therefore any farther account of them is unnecessary.

In North America are several kinds of squirrels, particularly one called the ground-squirrel, which is little larger than a mouse, and is finely spotted like a young fawn. It is a sort of dormouse, only different in colour.—Those called fox-squirrels, which are much larger than the English squirrels, are very numerous in Virginia. They are almost as grey as a common rabbet, and are reckoned *good food*.—But one of the greatest curiosities of

Virginia, though it cannot be said to be peculiar to that country, is the flying-squirrel, so called from its being provided with a skin that can be expanded from each side like a sail, and greatly assists it in leaping from one bough to another; insomuch that, though it is smaller than the fox-squirrel, and even than the least of our squirrels in England, it can jump much farther. M. Klein tells us, that in the year 1727 two of these flying squirrels were brought alive to Warsaw, and presented to Augustus II. king of Poland. The king's physician examined one of them when dead, and caused its expanded body to be delineated. In the year 1728 M. Klein had one of these squirrels given him, which was taken in the woods on the confines of Russia, and was much less than the common squirrel. Its skin was very soft, of a beautiful dark-grey colour, and its eyes were large, black, and prominent. It had small ears and very sharp teeth; but though most of them are very mischievous, this was tolerably gentle, and would not bite, unless it was provoked. It was usually fed with bread baked without salt, but the fresh tops of birch were its favourite food. This little creature made its bed in an elegant manner of the moss of the birch, in which it would lie buried as it were, and not stir from thence in the day time, unless disturbed or thirsty. As to the membrane which may be called its flying instrument, it might be expanded from each side about the breadth of a palm, and adhered to the bending of the hinder feet, but was connected with the fore feet by a boney articulation. Upon the whole, M. Klein concludes, that this animal does not properly fly *, but that it can leap from

* *Such animals are properly called flying as roam about freely in the air, and not such as only leap with agility*

ace to place with greater ease than other squir-
ls, and by means of its sails continue longer in
e air.

The consideration of the flying squirrel natu-
lly leads us to take a view of some of the fea-
ered race, whom nature has furnished with wings
at enable them to expatiate in the air; that is, to
, in the true and proper meaning of the word.
f all this tribe there is none more deservedly ad-
ired than that curious and beautiful little animal
lled the humming-bird, of which there are se-
ral species to be met with in most parts of the
nerican continent, as well as in many of its
ands. The smallest sort of humming-bird is
nsiderably less than a wren; and, according to
accounts, it is the least bird in the world. Mr.
mesly (in the Philosophical Transactions) tells
that the leg and foot together are but half an
h, and the whole body not quite an inch in
gth. Upon weighing one as soon as it was
led, it was found to be only the tenth part of
ounce avoirdupoise, which is much about the
ight of a sixpence; whereas a titmouse, the
allest bird in England, weighed above two shil-
gs. The same gentleman tells us, that its eggs
about the bigness of a pea; and Mr. Win-
op, who weighed two of them, found one to be
ut five grains, and the other only three and a

n one tree to another. Nay, it has been much doubted
ome, whether there is any such thing in nature as
ing quadruped; but the common bats put the matter
of dispute, to say nothing of the dracunculi preserved
veral museums.—Something like the flying squirrel,
erhaps the same, is the felis volans or flying cat of
ger; and of the same nature, but larger, is the ves-
ilio admirabilis of the wonderful bat of Brontius.

ver represent the humming-bird as formidable to
e hawk on account of his sharp bill, which is as
ne as a needle, and with which he pierces the
des of his enemy, clinging fast to him with his
tle talons: but this we apprehend is fabulous.

The nest of the humming-bird is curiously con-
ived, being made of cotton-wool, in form and
gness like the thumb of a man's glove, and usu-
ly built at the extremity of the branches of the
marind trees. These birds are seldom seen on
e ground, but fly about the gardens from one
ower to another. They are seen only in summer,
nd are very difficult to keep alive for want of
eir natural food; though Mr. Clayton says they
ave been kept, and fed with sugar and water.

The next curiosity among the feathered inha-
itants of North America is the mocking-bird,
o called from its imitating the notes of all other
irds, which, with the many charming ones
f its own, makes it accounted the finest singing
ird in the world. There are two sorts of them,
e grey and the red, both about the size of a
rush; but the former is most esteemed, as hav-
g the softer note. Its feathers are much of the
olour of our grey plovers, with white in the
ings like a magpye; and its postures in flying
re very odd, sometimes with its tail upright
nd its head down, and sometimes the contrary.
t is a brisk bold bird, and yet seems to be of a
ender constitution, neither singing in winter,
or in the middle of summer, and with much
ifficulty are any of them brought to live in Eng-
nd. It sings not only by day, but also at all hours
f the night on the tops of chimneys.

In Carolina are five kinds of hawks, the most
markable of which is named the herring-tailed

hawk, from its beautiful forked tail; and it is also called the snake-hawk, from its feeding on snakes, it managing with great dexterity the largest in those parts. It is of the size of a falcon, but is a much longer bird, of a fine aurora colour, with the pinions of the wings and end of the tail of a jet black. These birds never appear but in summer, and are very familiar. They will fly for hours together, near the place where the snakes are, till they have an opportunity of killing some of them. They seize the formidable reptile in their talons, near the head, flying and dragging it some distance before they tear it in pieces; and then devour it. On account of their destroying the snakes, the planters will not suffer them to be killed.

There are two sorts of Virginian nightingales, or red birds, the one with a tuft on his head, the other quite smooth-feathered. The cocks of both species are of a bright scarlet colour, and the hens of a dusky red.—In the same country is a bird called the blue bird, which is of a beautiful azure colour, and about the bigness of a chaffinch; and here are several sorts of goldfinches, finely variegated with red, orange, and yellow feathers.—There is another bird very injurious to corn, called a black-bird, being as black as a crow, only some of them have scarlet feathers in the pinions of their wings. They seem to be a sort of starlings, for they cry like them, but do not sing, and are much of the same bigness.—The jay of Virginia is less than that of England, and the body of it is blue, whereas ours is brown. Its wings however are curiously marbled, and it has the same *cry, and sudden* jetting motion.—In the wood-*peckers there* is great variety; one species of

head; besides which there are four or five
ts more, some with green, yellow, and red
ds, and others spotted with red and white in a
y beautiful manner.
n Virginia, there are three sorts of eagles,
largest of which is called the grey eagle,
ng much of the colour of our kite or glead;
second is the bald eagle, so called because
body and part of the neck and head are
y covered with a whitish sort of down;
l the third is the black eagle, much resembling
se of our own island. These generally build
ir nests on the top of some tall old tree, strip-
l of its boughs, and near the side of a river;
l the people usually fell the tree when they take
young. When the eagle observes that the
ing-hawk has struck a fish, he takes wing im-
diately, and pursues the hawk; which chace
ords the spectators an agreeable entertainment,
, as soon as the hawk perceives himself pursued,
screams and makes a terrible noise, till at length,
order to save himself, he drops the fish, which
eagle frequently catches before it reaches the
th or water. These eagles kill young lambs,
s, &c.—The fishing hawk is a species of the
g's-fisher, and much resembles that bird in
pe and colour, though it is larger, and not
te so curiously feathered.
Several sorts of owls are found in Virginia
l other parts of the United States, particularly
wn and white owls, which are as large as a
se, and often kill hens and other poultry in the
ht. The white owl has a delicate plumage,
feathers on the breast and back being white as

snow, and tipped with a jet black.—He
likewise a large ravenous kind of bird, al
as big as an eagle, called a turkey-bu
having red gills resembling those of a tu
from whence it seems to have derived its n
It seems to be a species of the kite, hoverin
the wing like that bird, and being carnivo
Its fat, dissolved into an oil, is much recomme
in the sciatica, and any old aches and pai
Nor must we omit the wild turkeys, whic
remarkable for their size, some of them wei
fifty or sixty pounds. Their legs are very
and they run exceeding swiftly. Their feathe
of a blackish shining colour, resembling tho
a dove's neck when viewed in the sun.—
are also several sorts of herons, one larger
the English, and feathered like a goose;
there is another species which come only in
mer, and are milk-white, with beautifu
legs.

Mr. Clayton tells us, that there are se
sorts of frogs in Virginia, and one in particul
a prodigious size, being eight or ten times as
any in England. It makes a noise like the lo
of a bull, or the hollow sound of a bittern. T
is another small sort of a frog, says our au
which during the spring makes a noise like
horse bells; and a third sort which is green
will take surprising leaps, on which accoun
called the flying frog.

The blowing snake, which is a sort of
derives its name from its blowing and disto
its head before it bites. Its poison, with
speedy remedy, is mortal; and there is an
dangerous kind of snake called the red s
as being of a dark brown colour inclining v

The bellies of these reptiles are of a dusky white, with a streak of red on each side.

The horn-snake is another remarkable species, so called from a horn on its head, with which it gives a wound as mortal as the bite of the rattle-snake.

That called the corn snake, from its being frequently found in corn-fields, is much like the rattle-snake in colour, but the chequers are not so regular, nor is its bite so venomous.

We must now turn our attention to the rattle-snake, an animal found commonly in most of the warm parts of America; and we shall be the more particular on this subject, as it has afforded matter of speculation and wonder to the most curious inspectors into the works of nature. This creature derives its name from certain joints at the end of its tail, which fold over each other somewhat like the tail of a lobster; and on being shook, make a rattling noise. The number of these joints or rattles is uncertain, being more or less according to the age of the snake, as some authors assert, imagining that every year there is the addition of a new rattle. However, they seldom exceed twenty, though Mr. Dudley was told by a man of credit, that he killed a rattle-snake, which had between seventy and eighty rattles, with a sprinkling of grey hairs, like bristles, all over his body; and that it was full five feet six inches long, and as big as the calf of a man's leg. Dr. Derham and others have observed, that Providence has wisely given these rattles to this poisonous serpent, that the noise might be a warning to man and beast to avoid the approaching danger.

The *usual length* of the rattle-snake is from

three to five feet: Dr. Tyson dissected one four feet five inches long, whose greatest circumference, was six inches and a half, that of the neck three inches, and near the rattle two inches. The top of the head was flat as in the viper*, and by the protuberance of the jaws it somewhat resembled the head of a bearded arrow. At the extremity of it were the nostrils; and between them and the eyes, but a little lower, were two other orifices, which the doctor took for ears; but he afterwards found they only led into a bone that had a pretty large cavity, but no perforation. The eye was round, and about a quarter of an inch in diameter, over which there was a large scale jetting out, which seemed to serve it for an eye-lid. The scales on the head were the smallest of any, those on the back the largest, increasing in proportion to the thickest part of the body, and thence diminishing again to the junction of the rattle, all of them in figure somewhat resembling the seed of a parsnip. They were of various colours, those on the head being like the feathers on the back of a green-finch, speckled with black spots, four of which were larger and very remarkable. Those on the back were a dark fillemot and speckled, forming by this mixture a curious chequer-work; but as they approached the end of the tail, they became darker, and at last almost black. The scales on the back had an edged rising in the middle, which was still less protuberant nearer the sides,

* Our author, upon the dissection of this snake, found its parts, both external and internal, so much like those of a viper in almost all respects, that he does not scruple to place it in that class; and from the rattle, which sufficiently distinguishes it from all other serpents, to name it *crotalus caudisona*.

where they were flat. The belly was covered with long scales of a yellowish colour, and speckled with black; but beyond the anus there were some scales of a lead colour, and from them to the rattle were six rows of smaller scales of the same colour. The scales of the belly were joined together by distinct muscles, the lower tendon of each muscle being inserted into the upper edge of the following scale, and the other tendon of the same muscle inserted about the middle of the preceding scale. To each scale a rib was appropriated, whose point was joined with the extremity of it, which must considerably promote the use for which nature designed them, assisting them to perform their reptile motions; for the scales are indeed so many feet, which, being free and open below, do thereby take hold of the ground. They move quicker on the rocks than on the earth or plains, because there they have firmer footing; but in soft ground, though their belly be flat, they can alter its figure so as to take the deeper hold, as is observed in a viper. In short, this coat of armour is so curiously contrived, that, though it covers the whole body, yet by its frequent jointings it admits the animal to make various motions.

Upon examining the lungs of the rattle-snake, which consist only of one lobe, the fore part whereof is full of numerous vesicles, and the latter an entire large bladder, our author takes occasion to observe, that, in animals where respiration is not so frequent, nature provides a sufficient store-house for the air in such large bladders, whence it is dispensed as the animal œconomy requires it; for tortoises, vipers, rattle-snakes, toads, &c. which sleep a great part of the year, as previously to this *repose they* take in their store of food, so perhaps

of air too; for, whilst they remain thus asleep, and sometimes dead to all appearance, it may be questioned whether they have any motion of those parts which are requisite to draw in fresh air in inspiration: And this seems to be confirmed by the instance of a viper, which remained alive some days after the skin and most of the viscera were separated, and the lungs were not observed all that time to rise or fall, as in inspiration and expiration, but appeared equally extended with air; only as soon as it died the lungs fell. The stomach of this viper was empty, and so was that of the rattle-snake the doctor dissected, which for four months at least had eaten nothing; so that, though they can live a long time without food, air being necessary for their subsistence, they are provided with the receptacles above-mentioned.

The head of this snake is small, but the mouth is very large, and its tongue in all respects like that of a viper, and composed of two long round bodies, joined together from the root two thirds of its length. These are darted out and retracted again with great agility. To facilitate its exertion, the under jaw is divided for a considerable space; for if it were conjoined, as in other animals, and beset with teeth, they would be apt to injure the tongue, or at least it might prove incommodious to the use it is designed for, which is supposed to be the catching of flies, and other small animals it has a mind to devour. Over the tongue lies the larynx, not formed with that variety of cartilages usual in other creatures, but having a sort of slit for receiving and discharging the air, which, passing only through such a slit, without other organs to modulate it, causes the

ng sound emitted by the rattle-snake and other
ents.

he teeth are of two sorts; first, the lesser,
ch are seated in each jaw, and serve the rattle-
es for the catching and retaining their food;
ndly, the poisonous fangs which kill their
y: and, as they neither chew nor bruise their
l, but swallow it whole, they have no occasion
grinders. Of the first sort of teeth there are
ne lower jaw two rows on each side, and five
row, the inward lesser than the outward, and
ll twenty: in the upper jaw are only sixteen,
on each side placed backwards, and six before;
none of those are poisonous. The fatal fangs
placed without the upper jaw, towards the
part of the mouth, not fastened to the jaw-
es, as the other teeth, but to muscles or ten-
s, except the two outermost and largest, which
fixed to a bone that may be taken for the
bone. These fangs are not to be perceived
irst opening the mouth, for they lie flat under
trong membrane or sheath*, but are to be
cted upon occasion. They are hooked, and in
of them, especially the larger, there is a hole
ards the root, and towards the point a very
in slit, from whence to the root they are per-
ly hollow, as the doctor discovered by gently
ssing the side of the gum with his finger; for
n the poison rose through the hollow of the teeth,
l issued out at the slit. This poisonous liquor is
t water-colour, slightly tinged with yellow.

* Mr. Ranby, who dissected the poisonous apparatus
rattle-snake, thinks the use of this membrane is to
vent the involuntary discharge of the poison out of
fangs. This gentleman in some particulars differs
Dr. Tyson, but in general his observations agree
well with that ingenious anatomist.

Thus much may suffice for the description and anatomy of the rattle-snake. But it seems proper to add here a few miscellaneous observations of Mr. Dudley's, who says there are three sorts of this snake, distinguished by their colour, viz. a yellowish green, a deep ash-colour, and a glossy black. Both men and beasts, he assures us, are more afraid of a rattle-snake than of any other serpent, and the eye of this reptile has something in it very singular and terrible. Whereas a common snake avoids a man, the rattle-snake never turns out of the way; but as he creeps with his head close to the ground, and moves very slowly, a person may easily get out of his reach. His leaping and jumping to do mischief is no more than extending or uncoiling himself; for in leaping they do not remove their whole body, as other animals do; so that a man is in no danger of them, if his distance be more than their length: nor can they do any harm when they are in their ordinary motion, till they first coil and then extend themselves, which are both done in a moment's time. They are always coiled when they rest or sleep, and they are observed to be exceeding sleepy.

The same author informs us, that these snakes make the greatest rattling in fair weather, and when it is rainy they make none at all; so that the Indians do not care to travel in the woods in time of rain, for fear of getting amongst them before they are aware. Another circumstance of their rattling has been observed, viz, that if a single snake be surprised and rattles, and there be others near him, they all take the alarm, and rattle in like manner.

Their common food consists of toads, frogs, *ground-mice*, crickets, grasshoppers, and other in-

; and the rattle-snakes themselves serve for
to bears; and even hogs will eat them with-
harm. They are viviparous *, and usually
g forth about twelve.—They cast their skins
y year, and generally den among the rocks in
t numbers together. They retire on the ap-
ch of winter, and come abroad at the begin-
of summer; when the hunters watch them,
as they come out to bask in the sun, kill them
undreds.

he rattle-snake's poison is unquestionably one
e most subtle and dangerous in the whole ani-
kingdom. Of this we have some extraordi-
instances given us by captain Hall, who, be-
in South Carolina, procured a fine healthful
le-snake, about four feet long, and with one
Kidwell, a surgeon, and three or four other
lemen, made several experiments to try the
cts of its poison. They got three cur-dogs,
largest not bigger than a common harrier; and
snake being tied and pinned down to a grass-
, they took the largest of the dogs, and having
a cord round his neck so as not to strangle
, the captain held one end, and another person
other. Immediately on bringing the dog over
snake, he raised himself near two feet, and bit
dog as he was jumping. The dog yelped, by
ch the captain perceived he was bitten, and,
ing the dog to him as fast as he could, he found
yes fixed, his tongue between his teeth, which

* This is a confirmation of the rattle-snake's being of
viper kind, for it is observed, that vipers bring forth
young alive, whereas common snakes lay their eggs
ing-hills, or other places proper to hatch them by
warmth, and therefore are reckoned amongst the
rous animals.

were close; his lips drawn up so as to leave
teeth and gums bare; and, in short, he exp
in a quarter of a minute. They could not
where the bite was, nor observe any blood; t
which ordering some hot water to scald the
off, they discovered only one puncture, wi
bluish-green colour appearing a little roun
This was just between his fore legs and his br
where the hair was thinner than in some o
places.

Half an hour after this they took a sec
dog, which was somewhat smaller, and bro
him in like manner over the snake, which bi
ear, so that all the company saw it. The
yelped loudly, showed signs of being very
reeled and staggered about for some time,
fell down and struggled as if convulsed, and
two or three times got up, each time waggin
tail, though slowly, and endeavouring to follo
negro-boy, who used to make much of him.
put him into a closet, and ordered the boy to
after him, who brought word in two hours tha
dog was dead.

About an hour after the second dog was bi
they took the third in like manner, which the s
bit on the right side of the belly, so that he
blood. The dog for about a minute did not
to be hurt, so they let him go, and saw no mo
him; but the next day a woman, who owned
came to the captain, complaining of his cruel
killing her dog.

Four days afterwards they got two dog
large as common bull-dogs; and the first, w
the snake bit on the inside of his left thigh,
exactly in half a minute, according to the wat
of two gentlemen present. There were two

small punctures in his thigh, which looked livid, though no blood was drawn.—The second dog was bit about an hour after the first, on the outside of his thigh, where they perceived blood at two places; he soon sickened, and died in four minutes.—As they thought the snake's poison was not spent, they got a cat, which he bit an hour after. She was very sick, and they put her in a closet; but by some means or other she got out, and the next morning was found dead in a garden.

A month after these experiments were made, the captain procured a common black snake, not of the viper kind, about two feet and a half long, and just taken; and, putting this and the rattle-snake together, he irritated them so that they bit each other. He perceived that the black-snake had drawn blood of the rattle-snake before he took them asunder; the black snake died in less than eight minutes, but the rattle-snake did not seem sick, or at all the worse for his wound.

The last experiment the captain made with this snake was to try whether his poison would not prove mortal to himself. In order to this he hanged him in such a manner that he was not above half his length on the ground, and then so irritated him by pricking and scratching him with two needles fastened to the end of a stick, that he soon bit himself, after having several times attempted to bite the stick. He then let him down, and he expired in eight or ten minutes. The snake was then cut into five pieces, and given to a hog, the head part first, in the sight of several people. The hog ate up all the snake, and ten or twelve days afterwards the captain saw the hog alive and healthful; which confirms the account of Mr. Dudley above-mentioned.

With respect to the cure of the bite of the rattle-snake, it is natural to think, that, if death follows it in so short a time, no remedy can reasonably be expected: but why might not olive-oil, if immediately applied to the wound, be as certain a cure in this case, as it has been found to be for the bite of a viper *, especially as the rattle-snake is of that kind, and probably their poison is much of the same nature? However, it is wisely ordered by Providence, that the countries infested by these noxious animals produce effectual antidotes against their poisons; and the Americans are not without a specific even against the most sudden efforts of this dangerous poison, viz. the serpentaria, or snake-root, of which there are various kinds, as that of Virginia, that of Brasil, that of Canada, &c. Those who travel or hunt in the woods carry this root constantly about them, to chew and swallow as soon as they are bit by a rattle-snake, the stagnation of the blood being prevented by its peculiar activity. Nay, we are told, this root not only cures the bite of the rattle-snake, but that the animal flies from the smell of it; for which reason travellers carry it with them on the end of a staff, to present towards the snake if he happen to come in their way.

The account we have of the discovery of the virtue of this root in curing the bite of the rattle-snake is this: A nation of the northern Indians, called Senekkas, observing that the root and flowers resembled the rattle of the snake, concluded that Providence had impressed that characteristic to point out it's use. These Indians, returning from a war with a southern nation, called Cata-

* See remarkable instances of this kind in vol. vii. 182.

whaes, in the year 1712, communicated the efficacy of this root to a planter on the frontiers of Virginia, who imparted it to his neighbours, and so it was soon known through those parts of America. And hence a particular species is named Senekka rattle-snake root, to distinguish it from other species which are much inferior in virtue.

After all, so speedy are the terrible effects of this snake's poison in many instances *, that it is the opinion of Capt. Hall, a judicious and observant person who lived several years in Virginia, that the safest and surest way of cure is to cut out immediately the part where the wound is made; for he has seen several, who, following that method upon being bit, have carried hollow scars about them, as marks of the narrow escapes they had had, but they never felt any inconvenience afterwards.

But, though we have said so much of the rattle-snake, we must not yet dismiss the subject; for besides the surprising effects of its poison, there are others attributed to its eyes almost equally astonishing, which ought not to be passed over in silence. The effects that we mean are said to be

* To the instances already given of the strength and virulence of this poison on animals, we may add another of the same on a vegetable body, which is mentioned by Col. Beverly, who says he was informed by Col. Taylor, that, being in company with others in the woods, they found a rattle-snake, and cut off his head. Then with a green stick which he had in his hand, about eighteen inches long, the bark of which was newly peeled off, he urged and provoked the head, till it bit the stick with fury several times; whereupon the colonel observing small green streaks rise up along the stick towards his hand, he threw it on the ground, and in a quarter of an hour it split into several pieces, and fell asunder from end to end.

produced by a certain fascinating power in the eyes of the rattle-snake, which, by keeping them fixed on any small animal, as a squirrel, a bird, or the like, though sitting on the branch of a tree, at a considerable height, can draw such animal down into its mouth. This perhaps may seem utterly incredible to people who have never heard or considered any accounts of this nature; but it is commonly asserted that all sorts of snakes have some degree of this faculty of charming or fascinating other animals by looking stedfastly upon them.

Col. Beverly tells us, that, as he was hunting in the woods, and had strayed from his companions, he was entertained at his return with an account of a pleasant encounter between a dog and a rattle-snake about a squirrel. The snake had got the head and shoulders of the squirrel into his mouth, which being something too large for his throat, it took him up some time to moisten the fur of the squirrel with his spawl, to make it slip down. The dog took this advantage, seized the hinder parts of the squirrel, and tugged with all his might. The snake on the other side would not let go his hold for a long time, but at last gave up his prey, and the dog ate the squirrel without any injury.

The same gentleman assures us, that several persons have seen squirrels run down a tree directly into a snake's mouth; and have also seen birds flattering up and down, and chattering at these snakes, till at last they dropped down before them. Besides the relations of others, he gives a very remarkable instance of this fascination, whereof he was an eye-witness, with two other persons in company. Having stopped at an orchard

by the side of the road, they were entertained with the whole process of a charm between a rattle-snake and a hare, the hare being better than half-grown. It happened thus: One of the company, searching for cherries, spied the hare sitting, and though he went close by her she did not move, till he, (not suspecting the occasion of her tameness) gave her a lash with his whip; upon which she ran three or four yards, and there sat down again. The gentleman, not finding the fruit ripe, immediately returned the same way; and near the place where he struck the hare he spied a rattle-snake. Still not suspecting the charm, he went back about twenty yards to a hedge, to get a stick to kill the snake; and at his return he found the snake removed and coiled in the same place from whence he had moved the hare. This induced him to look for the hare again, and he soon spied her about ten feet distant from the snake, in the place to which she had started when he whipped her. She was now lying down, but sometimes raised herself on her fore feet, struggling as it were for life, to get away, but could not raise her hinder parts from the ground; and sometimes she fell flat on her side, panting vehemently. The hare and snake were in this condition when our author was called, who says, that, though all three present within five yards of the snake to have a full view of the whole, the snake did not take the least notice of them, nor so much as give a glance towards them. There they stood at least half an hour, the snake not altering one jot; but the hare often struggled to get up and fell on its side again, till at last she lay still for some time as dead. Then the snake moved out of his coil, and slid slowly and smoothly towards the hare, his colours

at that instant being much more brilliant
at other times. As the snake moved along,
hare happened to make another struggle, t
which the snake made a stop, lying at his le
till the hare was quiet, and then he advance
he came up to the hare's hinder parts, whic
all this process had been towards him. T
he surveyed the hare all over, raising part o
body above it; then he turned off and went t
nose, and after that to the ears, which he too
to his mouth one after the other, working the
a man does a wafer to moisten it. He then
turned to the nose, and took the face into
mouth, straining and gathering his lips, s
times on one side, and sometimes on the other
the shoulders he was a long time puzzled, o
pulling and stretching the hare out at length,
at last he got the whole body into his throat.
spectators then advanced, and our author, ta
the twist-band off his hat, made a noose, and
it about the neck of the snake. This made
very furious; but having secured him they
him into one end of a wallet, and carried hi
horseback five miles to the house where
lodged that night: and next morning they k
him, and took the hare out of his belly. The
of the hare began to be digested, and the ha
fall off, having lain in the snake's belly a
eighteen hours.

small way, or perhaps a bird to fly up into the next tree, where the snakes watch them with great earnestness till they fall down, or are perfectly dead, when, having licked them over with their spawl or spittle, they swallow them down.

Now we grant that Sir Hans's conjecture, is very natural, and perhaps the hare above mentioned might have been surprised and bit by the rattle-snake, before it was affected in such a manner; but still there are many instances of what we call fascination, not only in the rattle-snake but in other animals, where no previous bite or other injury has been received by the animal. Dr. Sprengell's account seems to be such an instance, who tells us, that at Milan he met with a viper-catcher who generally kept a considerable number of these animals alive in a back room open at top: and having one day got a female viper big with young, a mouse was thrown amongst them; but of the whole number of vipers, which were upwards of sixty, not one concerned himself in the least about the mouse, till the pregnant female viper and the mouse interchanged eyes, as the doctor expresses it. Upon this the mouse startled: but the viper raised her head, and turned her neck into a perfect bow, her mouth being open, her tongue playing, her eyes all on fire, and her tail erect. The mouse seemed soon recovered of its fright, and would take a turn or two, sometimes more, pretty briskly round the viper, giving now and then a squeak, till at last it ran swiftly into the mouth of the viper, and gradually sunk down the gullet. All this while (adds our author) the viper never stirred out of her place.

Something of this kind almost every one may have observed in the setting dog, the effects of

whose eye on the partridge are very remarkable. The poor bird, when once its eyes meet those of the dog, stands as if confounded, regardless of itself, and easily lets the net be drawn over it. And we have read of squirrels so stupid and overcome by a dog's staring hard at them, that they have dropped from the tree almost into his mouth.

Amongst the curious animals of North America we may reckon the little insect which affords that valuable drug called cochineal, of great use in dying crimsons and scarlets, and esteemed in medicine as a cardiac and alexipharmic. Naturalists have been strangely divided with respect to the origin of cochineal, some referring it to the vegetable, and others to the animal kingdom; to which last it is now proved to belong by incontestable evidence.

These insects, so highly valued in every part of the world for the incomparable beauty of their colour, are of two sexes, but exceedingly dissimilar in their appearance. The female is ill shaped, tardy, and stupid; its eyes, mouth, and antennæ, are fixed so deep, and are so concealed in the folds of the skin, that it is impossible to distinguish them without a microscope. The male is very scarce, and is sufficient for upwards of three hundred females: it is active, small, and slender in comparison with the female, and its neck is much narrower than the rest of its body. Its throat is of an elliptic form, a little longer than the head and neck put together, and flattened below; its antennæ are jointed, and from each joint issue long slender hairs, that are disposed in pairs on each side. It has six feet, each formed of distinct parts. From the posterior extremity of its body two large hairs

or bristles are extended, which are about four or five times the length of the insect.

To the upper part of the thorax are affixed two wings of an oblong form, which fall, like the wings of common flies, when the insect walks or rests: they are strengthened by two oblong muscles, one of which extends itself on the outside all round the wing; and the other, which is internal and parallel to the former, seems interrupted toward the summit of the wings.

When these little animals can bear the open air, which is early in the spring, they soon grow large enough to produce young ones; at which time they put twelve or fourteen together into a little nest, made of fine soft hay, straw, moss of trees, or the down that immediately encompasses the cocoa-nut. These nests are placed upon the nopal, or prickly Indian fig-tree, which is carefully cultivated for this purpose; and in three or four days a great many young ones are produced, after which the old ones die. The young ones, coming out of their nests, climb up the nopal, fix themselves to it, and suck its juice, which is their only nourishment, for they do not eat the plant; and therefore they seek out those parts of it that are greenest and fullest of juice, taking care to place themselves so as to be screened from the wind and weather. During this time, whilst they are growing up and become pregnant, great care is taken that no vermin incommode them, and also to keep them clean, and disengage them from certain threads like cobwebs, that grow upon the nopal. They are likewise to be sheltered from too much heat or cold, and from the rain and wind, for the finest of these insects are very tender. The wild sort indeed bear all

bring forth, and have produced some few,
dians carefully gather them off the nopal
small brush like a pencil. Being thus collec
little creatures are killed by hot water or f
are called the second gathering, or rather t
of the young ones that have been nourish
raised in the open air. In three or four
more they gather the second brood of th
have been brought forth upon the nopal, a
likewise produced some young ones; w
done much in the same manner as befor
now they take from the plant a great many
ones with their parent insects; and, from th
ber of small ones found amongst this ga
of cochineal, it is called granilla. In th
time they keep a number of these you
alive upon the nopals, which they pluck
ut down, and take them into their ho
nber to nourish the insects during the rainy
astly, when these are grown large, they p
into the nest, and proceed in the manne
related; so that they usually make three ga

into a single stem, which during its growth, divides into several branches, which successively produce fresh leaves, the largest being nearest the stem, and full of knots, as are also the branches, and from these the leaves have their origin. The plant seldom exceeds three yards in height; its blossom is small, of a bright red, and in the shape of a bud, from the centre of which proceeds the fruit. When the fig is ripe, the outward skin becomes white, and yet the pulp is fully impregnated with a deep red, yet few fruits are more pleasant and wholesome. It is remarkable that this insect does not, in any visible manner, injure the plant, but extracts its nourishment from the most succulent juice, which it sucks by means of its proboscis, through the fine teguments of the leaves.

There are three ways of killing these insects, viz. by hot water, by little ovens made for that purpose, or by roasting them upon flat stoves with fire under them, such as the Indian women use to bake their bread. These three different methods give the cochineal three different colours. The first makes it of a brown red, the hot water taking off the whiteness that covers the insect when alive. The second makes them of an ash-colour, and marbled; and the third makes them black as if they had been burnt.—Of the old ones that die after bringing forth their young, four pounds, when dried, produce but one, or rather one pound is reduced to four ounces; but three pounds only of the living ones, that have been carefully taken off the nopals, being killed and dried, produce the same quantity.

However, it seems proper to observe, that, though cochineal is now known to be produced

by an animal, there is a berry growing in America which yields a dye almost as beautiful as that of the insect. The first shoots of the tree produce a yellow flower, then comes the fruit which is long, and opens when ripe with a cleft of three or four inches. This fruit is full of kernels or grains, which fall on the least agitation, and are carefully gathered up by the Indians. Eight or ten of these fruits will yield about an ounce of grain; and a person may easily take it for the animal cochineal, but this last is much the most esteemed.

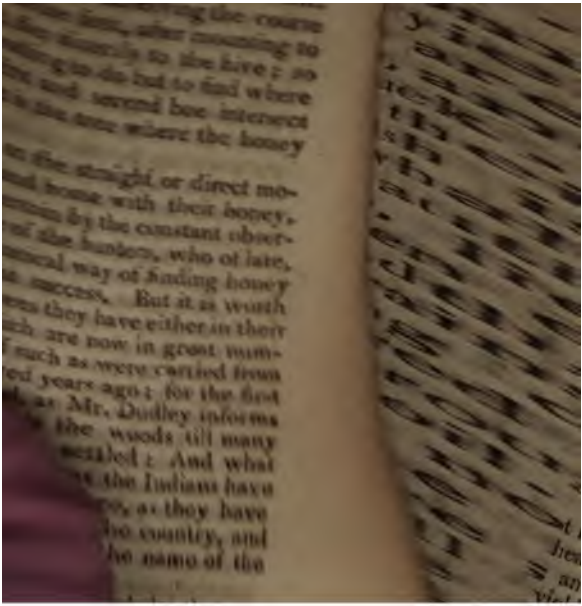
As we are now speaking of insects, it may not be amiss to introduce here an account of a method in New England of discovering the hives or nests of bees in the woods, in order to get their honey. For this end the hunter (as he is called) in a clear sun-shiny day takes a plate or trencher with a little sugar, honey, or molasses, and, when arrived in the woods, he sets it down on a rock or stump of a tree. This is soon found out by the bees, which are generally supposed to smell honey or wax at above a mile's distance. When they are gathered about the plate, and have fed a little while, the hunter secures a few of them in a box; and after a short time he lets one of them go, observing very carefully the course he steers; for, after he rises in the air, he flies directly on upon a strait course to the tree which contains the hive or nest. Now, the hunter being provided with a pocket-compass, a rule, and other implements, with a sheet of paper, he sets down the course of the bee, supposing it west, or any other point; and by this he is sure the tree must be somewhere in the west line from his station: but, to know the exact distance he removes from thence either north or south, suppose a *hundred* perches, or if it be more it will be the

more exact, because the angle will not be so acute. He then lets go another bee, observing the course carefully; for this, like the first, after mounting to a convenient height, flies directly to the hive; so that the hunter has nothing to do but to find where the courses of the first and second bee intersect each other, and there is the tree where the honey is lodged.

All this is founded on the straight or direct motion of bees when bound home with their honey, which is found to be certain by the constant observation and experience of the hunters, who of late, have used this mathematical way of finding honey in the woods with great success. But it is worth observing, that all the bees they have either in their gardens or woods, which are now in great numbers, are the produce of such as were carried from England about a hundred years ago; for the first planters in New England, as Mr. Dudley informs us, never observed a bee in the woods till many years after the country was settled: And what proves this beyond dispute is, that the Indians have no word in their language for a bee, as they have for all animals that are natives of the country, and therefore used to call a bee by the name of the Englishman's fly.

We have already described the whales that are found in the seas of Greenland, and the method of taking them *; but there are several curious particulars relating to those found on the coast of New England, which ought by no means to be omitted. There are several sorts of whales on this coast, of which the most remarkable are the true whale, or that which yields the whalebone, and another

* See vol. iii. page 6.



one of these teeth, taken from a whale forty-nine feet long, and whose head yielded twelve barrels of spermaceti oil. These are more gentle than the other species of whales, and seldom fight with their tails, but, when struck, usually turn upon their backs and fight with their mouths. The oil made of the body of this fish is much clearer and sweeter than that of other whales.

The spermaceti, as our author calls it, which makes this fish so valuable, lies in a large trunk four or five feet deep, and ten or twelve feet long, near the whole depth, breadth, and length of the head, in the place of the brains, and seems to be of the same consistence, being disposed in several membranous cells, and covered with a thick gristly substance below the skin, through which they dig a hole, and take out the clear oil. It is found indeed in other parts of the fish, but not in so large quantities nor so good as in the head, where it is thoroughly prepared by nature; and it is affirmed that this trunk or cavity will yield from ten to twenty barrels, and the whole fish from twenty to fifty barrels of the common oil.

The ancients were great strangers to the origin of the spermaceti, insomuch that Schroder seems to doubt whether to reckon it an animal or mineral substance. And indeed the method of preparing it at present, is a secret in the hands of a few persons, according to Pomet, who describes the process as follows. The oil or brain, being taken out of the animal, is melted over a gentle fire, and put into moulds like those wherein sugar-loaves are formed. When cold and drained it is melted over again; and in this manner they proceed till it be *well purified*, and become very white. Then *with a knife*, made for that purpose, it is cut in

scales or flakes, such as we have it from the druggist. Now Pomet may possibly be right as to the process generally used, but Dr. James says he has seen spermaceti which has undergone no treatment at all, except being put into paper-bags, so that the oil that adheres to it might be absorbed.

The true spermaceti is very white, and in very small flakes, which by rubbing upon the hand dissolve into a sort of oil, and do not adhere to the palate when chewed, as the common sort will, which is probably adulterated with wax or some other substance. In many cases it is a noble medicine, but is principally used in bruises, inward hurts, &c. It is an excellent balsamic in disorders of the breast; and in coughs, sharp rheums, &c. it is very safe, pleasant, and effectual; as also in pleurisies and inward imposthumations. Outwardly used, it is emollient and healing; but its greatest use this way is in the small-pox, melted with the oil of almonds. With this the pustules are just moistened when they begin to harden; and it wonderfully prevents those scars they are apt to leave behind them. It is sometimes also [illegible] as a cosmetic by the ladies, both in paints and [illegible]; and candles are likewise made of it, [illegible] superior to the finest wax candles in colustre.

[illegible]eople of New England, says Mr. Dudley, [illegible]merly to kill the whales near the shore; [illegible]w they go off to sea in sloops and whale-[illegible] in May, June, and July, between Cape Cod [illegible] Bermudas, where they lie by in the night, and [illegible] to and fro in the day-time, and seldom miss of [illegible]em. The best season for taking the whalebone [illegible] is from the beginning of February to the end [illegible] May, and for the spermaceti whale from the be-

ginning of June to the end of August.—The boats they use in pursuing the whale are made of cedar clap-boards, and are so very light that two men can easily carry them, though they are twenty feet long, and contain six men, viz. the harpooneer, four rowers, and the steersman. These boats run very swiftly, and by reason of their lightness can be readily brought on and off, and so kept out of danger. Sometimes the whales are killed with a single stroke, and sometimes will hold the whalemen in play for half a day together, and even make their escape after they have been lanced and have spouted blood, which is a sign they have received their mortal wound. The bone-whales have two spout holes, but the spermaceti whales have only one.

The prodigious strength of the whale lies chiefly in his tail, of which Mr. Dudley and other authors have given us variety of instances. A boat has been cut down from top to bottom with the tail of a whale, as if cut with a saw, the boards being scarcely splintered. An oar has been cut off while a man had it in his hand, without feeling the least jarring. But one instance of the strength of this animal, as related by Mr. Dudley, will be sufficient, instead of many that might be added. Some years ago one of the fin-back whales, a species found on the coast of New England, came into a harbour near Cape Cod, and towed away a sloop of about forty tons out of the harbour into the sea. It is supposed the whale was rubbing herself against the fluke of the anchor, or accidentally got the fluke of the anchor into the orifice of the uterus, and, finding herself caught, tore away with such *violence*, that she towed the ship out of the harbour as fast as if it had been under sail with a

gale of wind, to the astonishment of the people a
shore, for there was nobody on board the vessel
When the whale came into deep water, she plung-
ed downwards, and had like to have carried the
sloop along with her; but the cable gave way, and
so the sloop was recovered and brought back into the
harbour. This whale was found dead some days
after upon the shore, with the anchor sticking in
her belly.

The whalebone whales are generally supposed
to live upon some oozy matter they suck up from
the bottom of the sea; but an experienced fisher-
man told Mr. Dudley, that he had observed this
whale, in still weather, skimming on the surface
of the water, to take in a sort of reddish spawn that
sometimes lies on the sea for a mile together. The
spermaceti whale, besides other food, feeds much
upon a small-fish, which has a kind of bill, and is
called by the fishermen a squid fish. The fin-
back whale, which has a larger swallow than the
other species, lives on mackarel, herrings, and
such sort of fish, great shoals of which he will run
through, and with a short turn cause an eddy or
whirlpool, whereby the fish are brought into a
cluster, and the whale will take in some hundreds
of them at a time.—It is to be noted, that, though
whales are gregarious, and are sometimes seen a
hundred in a company, the several kinds do not
mix with one another, but keep by themselves.
In speaking of the whales of Greenland we ob-
served, that these animals bring forth their young
alive, and suckle them with their milk; and this is
confirmed by Mr. Dudley's account of the New-
land whales, which are therefore termed bull,
cow and calf. They bring forth but one at a
time, and only every other year, and are supposed
to go with young about nine or ten months. The

calf or young whale has been found perfectly formed in the dam when not above seventeen inches long, and white; but, when brought forth, it is usually twenty feet long as already mentioned, and of a black colour. The female has two teats, six or eight inches long; and, when she suckles her young, she turns herself almost upon her back, upon the surface of the water. Her milk is white, and, upon opening a young sucking whale, it has been found curdled in his bag, just like that of a calf. For the first year they all suck the dam, but live, after they are weaned, in the manner above related.

The care the females take of their young is very remarkable. They not only carry them on their tails, and suckle them, but often rise with them to the top of the water for the benefit of the air, and when they are chaced they will not strike with their tail; but, if the young one happens to drop off, the dam turns about, and passing underneath takes it on again. If their young be ever so much wounded, as long as they perceive any life in them, they never forsake them; and therefore care is taken, by those who kill these fish, only to fasten the young one, and not to kill it, till they have first secured the dam; for if the young whale be killed first, the dam grows so outrageous that it is almost impossible to manage her. When pursued they will keep under water for half an hour or more; but if a female have a young one on her tail, she rises oftener, that it may take breath; otherwise, when not disturbed, they usually rise and blow about once in a quarter of an hour, spouting out water, and drawing in fresh air.

Mr. Dudley informs us of a sort of fish that preys *upon whales*, often killing the young ones, [illegible]

they seldom venture upon the old ones, unless they are much wounded. The whale-men of New England call these fish whale-killers, for they go in company by dozens, and will set upon a young whale, and bait him like so many bull-dogs, some laying hold of his tail, others of his head, and so bite and worry him, till being heated he lolls out his tongue, which some of them are sure to catch at; but if they miss their aim, they fasten on his lips, and thus torture him till they have killed him. When they have done this, they feed chiefly on his tongue and head, but leave him when he begins to putrify. These killers are from twenty to thirty feet long, and have teeth in both jaws that lock within each other. They are of such vast strength, that when several boats together have been towing a dead whale to the shore, one of them has fastened his teeth in it, and dived with it in an instant to the bottom.

Before we dismiss this subject, it seems proper to add an account of the sword-fish and thrasher, two allied enemies of the grampus, a species of whale frequenting the seas of North America. Mr. Smith, author of the history of Nevis, says, he has often been an eye-witness of the battles between these allies and their common enemy the grampus, who as naturally encounter each other when they meet at sea, as the elephant and rhinoceros do at land. The sword-fish gets underneath the grampus, and pricks him in the belly, till he [illegible] to the surface of the water; and then the [illegible] mounts his back, and beats him sharply [illegible] tail. Our author was once within less [illegible] dred yards of a fight between these [illegible] and assures us they caused the spray of [illegible] up very violently all round them; but,

to the best of his discernment, the thrasher seemed to fight with a weapon about three yards long, like a monstrous broad-sword, issuing from his nose, and not with his tail, as is commonly reported.

CAVES, SPRINGS, LAKES, CATARACTS, &c.

AN account has been given in the Philosophical Transactions of a remarkable cave some leagues to the north-west of Mexico, gilded all over with a sort of leaf-gold, which had deluded many Spaniards by its promising colour, for they could never reduce it into a body, either by quicksilver or fusion. Our author went thither one morning with an Indian for his guide, and found its situation was pretty high, and in a place very proper for the generation of metals. As he entered into it, the light of the candle soon discovered on all sides, but especially over his head, a glittering canopy of mineral leaves; but on his snatching at them, there fell down a great lump of sand, that not only put out his candle, but almost blinded him: and, on his calling aloud to his Indian, who stood at the entrance of the cave, it occasioned such thundering and redoubled echoes, that the poor fellow imagining he had been wrestling with some fearful spirit, soon quitted his station, and thereby left a free passage for some rays of light to enter, and serve him for a better guide. Our author's sight was somewhat affected by the corrosive acrimony of the mineral dust; but, having relighted his candle, he proceeded in the cave, heaped together a quantity of the m

neral mixed with sand, and scraped off from the surface of the earth some of the glittering leaves, none of which exceeded the breadth of a man's nail, but with the least touch were divided into many lesser spangles, and with a little rubbing they left his hand gilded all over.

On the western coast of Mexico there is a vast hollow rock, which, having a large aperture at the top, makes a frightful noise at every surge of the sea, and sometimes spouts up water like a whale, to a prodigious height.

In the town of Pomfret, in Connecticut, is a cave rendered remarkable by a singular adventure of General Putnam. This cave has been described and the story elegantly told by Colonel Humphreys, to whom we are indebted for the following particulars.

Some time after Mr. Putnam had removed to Connecticut, the wolves, which were then very numerous, broke into his sheep-fold, and killed seventy fine sheep and goats, besides worrying several lambs and kids. This dreadful havoc was committed by a she-wolf, which, with her annual whelps, had for several years infested the neighbourhood. The whelps were commonly destroyed by the vigilance of the hunters, but the old one was too sagacious to come within reach of gunshot; and upon being closely pursued, she would generally fly to the western woods, and return the next winter with another litter of whelps.

This animal, at length, became such an intolerable nuisance, that Mr. Putman and five of his neighbours agreed to hunt alternately, until they could find and destroy her; and two of them, in rotation, were to be constantly in pursuit. It was known, that, having lost the toes from one foot, by a steel

trap, she made one track shorter than the other. By this vestige, the pursuers recognized, in a light snow, the route of the wolf. Having followed her to Connecticut river, and found she had turned back toward Pomfret, they immediately returned, and by ten o'clock next morning, the blood-hounds had driven her into a cave about three miles distant from Mr Putnam's house. The people soon assembled with dogs, guns, straw, fire, and sulphur, to attack their common enemy, and several attempts were made to dislodge her from the den, but the hounds came back wounded and intimidated; and neither the smoke of blazing straw, nor the fumes of burnt brimstone could compel her to quit her retirement.

Wearied with these fruitless attempts, which had continued nearly twelve hours, Mr. Putnam proposed to his negro servant to go down into the cavern and shoot the wolf; and on his declining the hazardous service, the General resolved himself to destroy the ferocious animal, lest she should escape through some unknown fissure of the rock. Accordingly, having provided himself with several strips of birch bark, to light him in this dark some cave, he pulled off his coat and waistcoat, and having a long rope fastened round his legs, by which he might be drawn back at a concerted signal, he entered head foremost, with the blazing torch in his hand.

The aperture of the cave, on the east side of a high ledge of rocks, is about two feet square: from thence it descends obliquely fifteen feet, and then running horizontally about ten more, it ascends gradually sixteen feet towards its termination. The sides of this cavity consist of smooth

and kicking the rope, he drew her forth
astonishment of all the admiring spectators

In the township of Shrewsbury, in Ne
sey, is a remarkable cave, in which the
three rooms. The cave is about thirty feet
and fifteen broad; and each of the roo
arched. The centre of the arch is about five
from the bottom of the cave; the sides not
than two and a half. The mouth of the cave
small; the bottom consists of a loose sand;
the arch is formed in a soft rock, through
pores of which, the moisture is slowly exuda
and falls in drops on the sand below.

At Swetara, in Pennsylvania, is a remarka
cave, on the east bank of Swetara river, ab
two miles above its confluence with the Susqu
hannah. Its entrance is very spacious, and d
scends so much, that the surface of the river
rather higher than the bottom of the cavern
The vault of this cave is of solid lime-stone rock,
about twenty feet thick. It contains several apart-
ments, some of which are very spacious and lofty.
Water is incessantly distilling through the roof,
and falls in drops to the bottom of the cave:
these drops petrify as they fall, and have gradual-
ly formed solid pillars, which seem to support
the roof. Some years ago, there were ten such
pillars, each six inches in diameter, and six feet
high: all so ranged, that the place they enclosed
resembled a sanctuary in a Romish church:—
"No royal throne," says Dr. Morse, "ever ex-
hibited more grandeur than this *lusus naturæ*. The
resemblances of several monuments are found in-
dented on the sides of the cave which appear like
the tombs of departed heroes. Suspended from
the roof is "the bell," which is nothing more

a stone projected in an unusual form, so called from the sound it occasions when struck, which is similar to that of a bell."

Some of the stalactites are of a colour like sugar-candy, and others resemble loaf-sugar; but their beauty has been much defaced by some of the neighbouring peasants. There are several holes in the bottom of the cave, descending perpendicularly into an abyss below, which render it extremely dangerous to walk without a light. At the end of the cave is a little brook, which, after a short course, loses itself among the rocks. Beyond this brook is an outlet by a very narrow aperture, through which the vapours continually pass outwards with a strong current, and resemble at night, the smoke of a furnace. Part of these vapours appear, on ascending, to be condensed at the head of this great alembic, and the more volatile parts to be carried off, through the afore-mentioned aperture.

In Virginia, there are many caverns of very considerable extent. The most noted is called Madison's cave, and is situated near the southern river of Shenandoah. It is in a hill of about two hundred feet high, the ascent of which, on one side, is so steep, that a biscuit may be pitched from its summit into the river which washes its base; and the entrance is in this side, about two thirds of the way up. "It extends," says Mr. Jefferson, "about three hundred feet into the hill, branching into subordinate caverns, sometimes ascending a little, but more generally descending, and at length terminates, in two different places, at basons of water of unknown extent, and which I should judge to be nearly on a level with the water of the river: however, I do

not think they are formed by refluent water from that; because they are never turbid; because they do not rise and fall in correspondence with that in times of flood or of drought; and because the water is always cool. It is probably one of the numerous reservoirs with which the interior parts of the earth are supposed to abound, and which yield supplies to the fountains of waters, distinguished only by its being accessible.—The vault of this cave is of solid lime-stone, from twenty to fifty feet high, through which water is continually percolating. This, trickling down the sides of the cave, has incrusted them over in the form of elegant drapery; and dripping from the top of the vault, generates on that, and on the base below, stalactites of a conical form, some of which have united, and formed massive columns."

Another of these caverns is situated near the North Mountain, in the county of Frederick. From the entrance, which is on the top of an extensive ridge, you descend thirty or forty feet, as into a well; and from this, the cave extends, nearly horizontally, four hundred feet into the earth, preserving a breadth of from twenty to fifty feet, and a height of from five to twelve feet. Mr. Jefferson informs us, that after entering this cave a few feet, the mercury, which in the open air was at 50 degrees rose to 57 degrees of Fahrenheit's thermometer, and continued at that to the remotest parts of the cave.

At a place called the Panther-gap in Virginia, is what is called the *Blowing Cave*, which is of about a hundred feet diameter, and constantly *emits a current* of air, with such force as to keep *the weeds* prostrate to the distance of twen

yards before it: this current is strongest in dry frosty weather, and in long spells of rain weakest. There is another blowing cave in the Cumberland mountain, but all that is known of this is, that it is inconstant, and that a fountain of water issues from it.

On the side of a small hill near Tinmouth, in Vermont is a very curious cave. From the entrance, which is only four feet in circumference, there is a descent of a hundred and four feet, and then opens a spacious room twenty feet in breadth, and a hundred in length. The roof is of solid rock, from which water is incessantly dripping, and the glittering stalactites which hang from it, are continually increasing in number and magnitude; and the bottom and sides are also daily incrusting with spar and other mineral substances. On the sides of this subterraneous hall, are tables, chairs, benches, &c. which seem to have been artificially carved; and in a word, the whole room, when illuminated by candles, has an enchanting effect upon the eyes of a spectator.—"If," says Dr. Morse, "we might be indulged in assigning the general cause of these astonishing appearances, we should conclude, from the various circumstances accompanying them, that they arise from water filtrating slowly through the incumbent strata; and taking up in its passage a variety of mineral substances, and becoming thus saturated with metallic particles, [illegible]ly exuding on the surface of the caverns [illegible]es, in a quiescent state, the aqueous [illegible]evaporate, and leave the mineral substances to unite according to their affinities."

At the end of this cave is a circular hole, about fifteen feet deep, apparently hewn out,

in a conical form, enlarging gradually as it descends, in the form of a sugar-loaf: and at the bottom is a spring of fresh water, which is in perpetual motion, like the boiling of a pot.

At Stafford, in Connecticut, is a medicinal spring, which is said to be a sovereign remedy for scorbutic and cutaneous disorders; and at Guildford, in the same state, there is another spring whose water is of so curious a nature, that upon being taken from the fountain, it will evaporate, even though put into a bottle and tightly corked.

The most noted springs in the country of New York are those of Saratoga. They are eight or nine in number, and situated in the margin of a marsh, about twelve miles from the confluence of Fish-Creek and Hudson's River. They are surrounded by rocks of a peculiar nature, formed by the petrifaction of the water. One of them, however, more particularly attracts the attention, as it rises above the surface of the earth five or six feet, in the form of a pyramid. The aperture in the top, which discovers the water, is perfectly cylindrical, and about nine inches in diameter. In this the water is about twelve inches below the top, except at the time of its annual discharge, which is commonly in the beginning of summer. At all times it appears to be in as great agitation as if boiling in a pot, although it is extremely cold. The same appearances are observable in the other springs, except that the surrounding rocks are of different figures, and the water flows regularly from them.

From repeated observations and experiments, the principal impregnation of these waters has been found to be a fossile acid, which is predomi-

nant in the taste. They are also strongly impregnated with a saline substance, which is very discernible in the taste and smell of the petrified matter about them.—From the corrosive and dissolving nature of the acid, the water acquires a chalybeate property, and receives into its composition a portion of calcareous earth, which, when separated, resembles an impure magnesia.—As the different springs have no essential variety in the nature of their waters, but the proportions of the chalybeate impregnation, it is highly probable that they originate in one common source, but flow in separate channels, where they have a connection with metallic bodies, in greater or less proportions.

The prodigious quantity of air contained in this water produces the fermentation and violent action already noticed; for after standing a small time in an open vessel, the air escapes, becomes vapid, and loses all that life and pungency which distinguish it when first taken from the fountain.—The particles of dissolved earth are deposited as the water flows off, which, with the combination of the salts, and fixed air, concrete, and form the rocks about the springs.

The effects produced by this water upon the human body are various; the natural operation of it, however, is cathartic, and in some instances emetic. As it is drank, it produces a very agreeable sensation in the mouth, but it is no sooner swallowed than it is succeeded by an unpleasant taste, and some pungent eructations, similar to those produced by a draught of cider, in a state of fermentation.

Several curious experiments having been made on these waters, we shall take the liberty to

present our readers with the following, extracted from Dr. Mitchell's Journal.—

"A young turkey held a few inches above the water in the crater of the lower spring, was thrown into convulsions in less than half a minute, and exhibited evident signs of approaching death; but on removal, and exposure to the fresh air, it revived and became lively. On immersion again for a minute in the gas, the bird was taken out languid and motionless.

A small dog put into the same cavity, and compelled to breathe the contained air, was, in less than a minute, thrown into convulsive motions, and soon after, lost the power to cry or move; but when taken out and exposed to the fresh air, he began to revive, and soon acquired strength enough to stagger from the place.

A trout recently caught, and briskly swimming in a pail of brook water, was carefully put into a vessel just filled from the spring: the fish was immediately agitated with strong convulsions, gradually lost the power to move or poise itself, and in a few minutes expired.

A candle repeatedly lighted and let down near the surface of the water was instantaneously extinguished, and not a vestige of fire remained about the wick.

In addition to these experiments it is said, that a bottle filled with the water, and shaken, emits a considerable quantity of aërial matter, that either forces out the cork, or bursts the vessel.—Wheaten flour, also, when moistened with this water and made into dough, will rise, with a proper application of heat, into light spongy *bread, without* the aid of yeast or leaven; from *which circumstances* it appears, that the air ex-

tricated from the water is precisely similar to that produced by ordinary fermentation.

We are likewise informed, that some lime-water, made of abalactiles brought from a subterranean cave at Rhinebec, became immediately turbid on mixture with the spring water; but when the water had been recently drawn, the precipitate was speedily re-dissolved.—Some of the rock surrounding the spring, on being thrown into a fire, calcined to quick lime, and slacked very well; and it has been frequently observed, that on the evaporation of the aërial, the water has lost its transparency, and deposited a calcareous sediment: whence it appears that the gas is aërial acid, that the rock is lime-stone, and that by means of the former the water becomes capable of dissolving and conveying the latter."

In the county of Morris, in New Jersey, is a cold mineral spring, much frequented by valetudinarians, and used with considerable success: and in the township of Hanover, in this county, on a ridge of hills, are a number of wells, which regularly ebb and flow about six feet, twice in every twenty-four hours. These wells are nearly forty miles from the sea, in a straight line.

In the county of Cape May, in the same state, is a spring of fresh water, which boils up from the bottom of a salt water creek, which runs nearly dry at low tide; but at flood tide is covered with water directly from the ocean to the depth of three or four feet: yet in this situation by letting down a bottle well corked, through the salt water into the spring, and immediately drawing the cork with a string prepared for that purpose, it may be drawn up full of pure fresh water.

In the county of Hunterdon, near the summit of

the Muskonetkony mountain, is a noted medicinal spring, to which invalids resort from every quarter. It issues from the side of the mountain in a very romantic manner, and is conveyed into an artificial reservoir for the accommodation of those who wish to bathe. This water is a strong chalybeate, and has been sometimes used with great success.

There are several medicinal springs in Virginia, some of which are indubitably efficacious, while others may probably owe their reputation as much to fancy and change of air, as to their real virtues. However, as none of them have undergone a chymical analysis in skilful hands, nor been so far the subject of observations as to have produced a classification of the disorders they relieve, we can give little more than an enumeration of them.

The most efficacious of these, according to Mr. Jefferson, are two springs in Augusta, near the sources of James river, where it is called Jackson's river. The one is distinguished by the name of the Warm Spring, and the other of the Hot Spring.—The *Warm Spring* issues with a very bold stream, sufficient to turn a great mill, and to keep the waters of its bason, which is thirty feet in diameter, at the vital warmth, or 96 degrees of Fahrenheit's thermometer.—The matter with which these waters is allied appears to be very volatile; and from its smell, and the circumstance of its turning silver black, it is evidently sulphureous.

The *Hot Spring*, situated about six miles from the former, is much smaller, and raises the mercury in Fahrenheit's thermometer to 112

common water issuing within a few inche
its margin, gives it a very singular appear
These springs are much resorted to, not
standing a total want of accommodation
invalids. Their waters are strongest in the h
months, which occasions their being v
principally in July and August.

The sweet springs are situated in the cou
Botetourt, at the eastern foot of the All
mountains. Having been found to relieve
in which the above mentioned springs had
ineffectually tried, their composition is sup
to be different. They differ also in their
perature, being as cold as common water.

On the Patowmac river, in Berkely c
are some medicinal springs, much mor
quented than those of Augusta: but their v
are weakly mineralized, and scarcely
It is probable that many invalids prefer
springs to those of Augusta, as being si
in a fertile and populous country, perfectly
from the Indians, and well provided wi
commodations.

In the low grounds of the great Kanhawa
ven miles above the efflux of Elk river, is a
hole in the earth, from which incessantly i
bituminous vapour, in so strong a current
give to the sand about its orifice the motion
has in a boiling spring. On presenting a l
torch or candle within eighteen inches of the
ture, the vapour flames up in a column of ei
inches diameter and four feet in height,
sometimes burns out within twenty minute
at other times has been known to continue
wards of three days. The flame is unstead
of the same density with that of burning

and smells like burning pit-coal. Water sometimes collects in the bason, which is remarkably cold, and is kept in ebullition by the vapour issuing through it; and it is a singular fact, that if the vapour be fired in this state, the water becomes hot, and evaporates in a very short time.

"The mention of uncommon springs," says Mr. Jefferson, "leads to that of Syphon fountains. There is one of these near the intersection of Lord Fairfax's boundary with the North mountain, not far from Brook's gap, on the stream of which is a grist-mill that grinds two bushels of grain at every flood of the spring. There is another near the Cow-pasture river, and about sixteen miles from the Hot Springs which intermits once in every twelve hours.

"After these may be mentioned the Natural Well in Frederick county. It is somewhat larger than a common well: the water rises in it as near the surface of the earth as in the neighbouring artificial wells; and its depth is unknown. It is said, there is a current in it, tending sensibly downwards. If this be true, it probably feeds some fountain of which it is the natural reservoir, distinguished from others, like that of Madison's cave, by being accessible. It is used with a bucket and windlass as an ordinary well."

There are five noted *licks* or salt-springs in Kentucky, viz. the higher and lower Blue Springs Licking river, from which issue streams of nish water; The Big Bone lick, Drenon's lick, d Bullet's lick at Saltsburgh. The last of these ings has supplied Kentucky and Cumberland h salt, at twenty shillings per bushel, Virginia ency; and some is exported to the Illinois try.—The method of procuring water from

these licks, is by sinking wells from thirty to forty feet deep; and the water thus drawn is more strongly impregnated with salt than the water from the sea.

Springs that emit sulphureous matter have been found in several parts of Kentucky. One is near a salt spring in the vicinity of Boonsborough; and there are three springs of bitumen near Green river, which empty themselves into a common reservoir, and, when used in lamps, answer all the purposes of the best oil. It is said, that a man, near Lexington, having dug about six feet below the surface of the earth, came to a large flat stone, under which was a well of common depth, regularly and artificially formed.

In the county of Wilkes, in Georgia, is a medicinal spring, which rises from a hollow tree, about five feet in length. The inside of the tree is covered with a coat of nitre, an inch thick, and the leaves around the spring are encrusted with a substance as white as snow.—The water is said to be a sovereign remedy for the scurvy, gout, consumption, and every other disease arising from humours in the blood.—A person who had a severe rheumatism in his arm, having, in the space of ten minutes, drank two quarts of the water, experienced a momentary chill, and was then thrown into a perspiration, which, in a few hours, left him entirely free from pain and in perfect health.

This spring, being situated in a fine healthy part of the state, where there are excellent accommodations, must prove a pleasant and salutary place of resort for invalids from the maritime and unhealthy parts of this and the neighbouring states.

The lakes and other large bodies of water in North America are too numerous to be particula-

rized under the present section; but we shall give a brief description of those which are most remarkable.

Lake Superior is so called from its magnitude, as being the largest on the continent. It may properly be termed the *Caspian* of America, and is supposed to be the largest body of fresh water on the globe. According to the French charts, it is fifteen hundred miles in circumference; but Mr. Carver supposes that if the utmost extent of every bay were taken, it would exceed sixteen hundred. The water is pure and transparent, and appears throughout the lake to lie upon a bed of huge rocks. It is worthy of remark with respect to the waters of this lake, that although their surface, during summer, is very warm, yet on letting down a cup to the depth of about six feet, the water drawn from thence is excessively cold.

Though this lake is supplied by near forty large rivers, yet it does not appear that one tenth part of the waters conveyed into it is discharged through the only visible outlet. How such a superabundance of water can be disposed of, remains a secret; but it certainly has a passage through some unfathomable subterraneous cavities.—The entrance into the lake from the straits of St. Marie, affords one of the most beautiful prospects in the world. On the left appear many pleasant little islands; and on the right is an agreeable succession of small points of land, that project a little way into the water, and contribute, with the islands, to render this delightful bason calm and secure from tempestuous winds.

Lake Huron, which is next in magnitude to Lake *Superior*, lies between forty-two and forty-six degrees of north latitude, and between four and ten

degrees of west longitude. Its shape is nearly triangular, and its circumference about one thousand miles.—On the north side of this lake is an island, one hundred miles long and only eight miles broad, which is called *Manataulin*, or "the place of spirits," and is considered as sacred by the Indians. At the north-east corner, this lake communicates with Lake Michigan, by the straits of Michillimackinac; and it is a remarkable fact, that although there is no diurnal ebb or flood to be perceived in the waters of these straits, yet from particular attention to their state, a periodical alteration has been discovered. It seems they have been observed to rise by gradual but almost imperceptible degrees till in seven years and a half, they attained the height of about three feet, and in the same space of time they gradually subsided to their former state; so that in fifteen years they had completed this inexplicable revolution.

Lake Ontario is situated between forty-three and forty-five degrees of north latitude, and between one and four degrees of west longitude. Its form is nearly oval, and its circumference about six hundred miles. Near the south-east part it receives the waters of the Oswego river, and on the north-east it discharges itself into the river Iroquois, which, on reaching Montreal, takes the name of St. Lawrence.

Lake Erie, situated between forty-one and forty-three degrees of north latitude, and between three and eight degrees of west longitude, is nearly three hundred miles long, and above forty in breadth. A point of land projects from the north side into the water, several miles towards the south-east, and [illegible] *islands and banks* towards the western extre[mity] *are so infested* with rattle-snakes, as to render [it] *upon them* extremely dangerous. This

e is of a more dangerous navigation than any the others, on account of the craggy rocks ich project into the water, in a perpendicular ection, many miles together, affording no shelter m storms.

About six leagues from the fort of Niagara, in nada, is the greatest cataract in the world, own by the name of the *Waterfall of Niagara*. e river at this fall runs from S. S. E. to N. W.; and the rock of the fall, forms a kind of are like a hollow semicircle or horse-shoe. Above fall, in the middle of the river, is an island ut eight hundred feet long; the lower end of ich is just at the perpendicular edge of the fall. fore the water comes to this island, it runs but wly compared with its motion afterwards, en it grows extremely rapid, running with a prising swiftness before it comes to the fall. It perfectly white, and in several places is thrown h up into the air. The water that runs down the west side is in greater abundance and ter than that on the opposite side; and seems ost to outfly an arrow in swiftness. When a son is at the fall and looks up the river, he may ceive that the water is every where exceeding- steep, almost like the side of a hill; but on king at the fall itself, it is impossible to describe astonishment it occasions.

The height of the cataract, as measured by ma- matical instruments, is found to be exactly a dred and thirty-seven feet; and when the wa- is come to the bottom it flies back to a great ght in the air. The noise may sometimes be rd at the distance of forty miles, but seldom ther. At some times the fall makes a much ter noise than at others; and this is regarded

as an infallible prognostic of rain or other bad weather.

From the place where the water falls there arises a prodigious vapour, like a thick smoke, insomuch than when viewed at a distance, a stranger might suppose, that the Indians had set their forests on fire. These vapours rise very high in the air when it is calm, but are dispersed by the wind when it blows hard. If any person go into this vapour, or if the wind blow it on him, it is so penetrating, that in a few moments he will be as wet as if immersed in water.

Some persons are of opinion, that when birds happen to fly into the smoke of the fall, they immediately drop down, and perish in the water; either because their wings are become wet, or that the tremendous noise of the fall astonishes and confounds them: but others think that this idea is merely chimerical; because among the great numbers of birds found dead below the fall, there are no other sorts than such as live and swim frequently in the water, as swans, geese, ducks, teal, &c. Great flocks of these animals are often seen going to destruction in the following manner:—They swim in the river above the fall, and so are carried down lower and lower by the water; and as water-fowl are commonly pleased with being carried by the stream, they indulge themselves in this pleasure, till the rapidity of the water renders it impossible for them to rise, and they are consequently hurried down the precipice.

In the months of September and October, such prodigious quantities of dead water-fowl are found every morning below the fall, that they afford ample subsistence for the garrison at the fort. Here also are frequently found the bodies of deer, bears,

and other animals, which have attempted to cross the water above the fall. Some melancholy instances of human beings having lost their lives in a similar manner, are related by travellers; and the following one is too affecting to be passed over in silence.—

"An unfortunate Indian was reposing, in a state of inebriety, in his canoe, which was properly secured, at the distance of some miles above the cataracts, while his wife sat on the shore to watch his slumbers. After some time, a sailor, from one of the vessels on the lake, happened to arrive at the spot, and began to take some indecent liberties with the Indian female. The woman naturally attempted to rouse her husband, but before she could effect her design, the brutal mariner cut the cord of the canoe and set it adrift. The little vessel glided swiftly down the stream, and in the space of a few minutes it was seen to enter the Rapids. The Indian, awakened by the violent motion of the waves, started up, and on perceiving his perilous situation, he grasped his paddle with a look of inexpressible horror; but finding it absolutely impossible to stem the force of the current, he calmly wrapped himself up in his blanket, and resumed his former position at the bottom of the canoe. In the space of a few moments, he was hurried down the precipice, and was never discovered more."

There is an island in the middle of the fall, which was formerly supposed inaccessible; but an accident that happened about sixty years ago made it appear otherwise. Two Indians went out from Fort Niagara to hunt upon an island that is situated in the middle of the river, above the great fall, which was then stocked with abundance of deer.

but having indulged too freely in the use of some French brandy, they fell asleep, and their canoe drove back with the stream till it approached that island which is in the middle of the fall. Here they were awakened by the noise of the cataract, and began to give themselves over as lost, but after some vigorous exertions, they effected a landing upon the island. At first they exulted in the idea of their escape; but upon cool reflection they found themselves hardly in a better state than if they had gone down the fall, since they had no other alternative than either to throw themselves down the same, or perish with hunger. After some time, however, hard necessity put them on invention; and as they found plenty of wood on the island, they made a ladder of the bark of the lind tree, in order to reach the water below: one end of this ladder they fastened to a large tree that grew on the side of a rock above the fall, and let the other end down to the water. By this contrivance they descended to the bottom in the middle of the fall; and then threw themselves out into the water, thinking to swim on shore. Scarcely, however, had they begun to swim, before they were thrown back with violence against the rock from which they came, and after several fruitless attempts, they were compelled to reascend to the island. After some time they discovered Indians on the shore, who appeared to pity their misfortune, but gave them little hope of assistance. These, however, ran to inform the commandant of the fort of the situation of their friends, who soon projected the means of their deliverance in the following manner.

The water that runs on the east side of this island is shallow, especially toward the eastern

shore. The commandant, therefore, caused some poles to be made and pointed with iron, and by the help of these, two Indians offered to walk to the island to save their unfortunate brethren or to perish in the attempt. Each had two such poles in his hands to set to the bottom of the stream in order to keep him steady, and in this manner they safely reached the island, and brought away the poor creatures, who were almost perishing for want of food.

On the west side of this island are some small rocks; and in former times, a part of the rock at this side of the fall hung over in such a manner, that the water which fell perpendicularly from it left a vacancy below, so that people could go under, between the rock and the water; but, some years ago, the prominent part broke off and fell down. The breadth of the fall, as it runs in a semicircle is reckoned to be about three hundred feet.

Every day when the sun shines, from ten o'clock in the morning till two in the afternoon may be seen, below the fall, the similitude of a beautiful rainbow, and sometimes two, one within another. The brightness and clearness of this phenomenon depends on the quantity of vapour that results from the spray of the cataract; for when the wind drives the vapours away the rainbow disappears; but as soon as new vapours come, it resumes its former appearance. The rock of the fall consists of a grey lime-stone.

What are called the great cohoes falls of the Mohawk river, have also a surprising appearance. The river is near a quarter of a mile broad, and the water, precipitating itself from several rocks which project from the rest, falls down on every side them in torrents, and being broken near the

bottom by many separate crags, rises in a white froth. The descent is here said to be about seventy feet, in which height are probably included the steep descents just below the above disjointed precipice; from whence also rises a misty cloud, that descends like small rain, and exhibits, when the sun shines, a beautiful rainbow, which moves as the spectator moves, according to the angle of vision. Misson relates the same of a mist arising from the cataract of Velino in Italy; and another author notices a similar phenomenon at the cataract of Narva in Livonia. We also read of marine rainbows, sometimes observed in a much agitated sea, when the wind sweeps away the tops of the waves, and carries them aloft, so that the sun's rays falling on them are refracted, as in a common shower, and paint the colours of the bow, but less distinct and of less duration.

ANTIQUITIES.

The ancient city of Mexico, as it stood on the same ground the present city stands on, was probably square, or pretty near that figure; and its dimensions may be guessed at from the number of families residing in it, which the histories of the conquest make to be about sixty thousand. There was a noble square in the middle of the city, which, at the time of the great fair, was resorted to by a prodigious concourse of people, and contained a great number of booths and tents wherein they lodged their merchandise. The city was divided into two parts; the one inhabited by the *gente, the nobility*, and persons of distinction; the

other by tradesmen and people of inferior rank. The former part was much the largest, where the streets were spacious, the houses of white hewn stone, one story high, and they had flat roofs, adorned with battlements. Their cielings were of cedar, cypress, or other odoriferous wood; and their hangings either of furs and beautiful feathers, or cotton linen, painted with a variety of figures of plants and animals: but, notwithstanding their wealth, none of the nobility were served in plate, which was the prerogative only of the emperor.

The palace of Montezuma, the last emperor, was so very large, that it had thirty gates, which opened into as many different streets, the principal front making one side of the above mentioned square. The materials of this building were polished jasper, black, red, and white; and over each gate were the arms of Montezuma, being a griffin with the wings extended, and a tyger in its talons. The whole consisted of several square courts, and was so vastly extensive as to contain apartments for three thousand of the emperor's women, and a proportionable number of domestics. Another palace assigned to Cortez and his army was likewise of a surprising extent, containing commodious rooms and apartments for five hundred Spaniards, and six thousand Indian auxiliaries; and, when the Spanish general had planted his artillery, and placed his guards, it had much the appearance of a fortress, being surrounded with a thick stone wall, and flanked with towers.

When Cortez and his army first entered the streets of Mexico, they were met by two hundred noblemen of the emperor's household, clothed in *one livery*, with large plumes of feathers on their *heads, all of* the same fashion and colour. These

after meeting and paying their compliments
Spanish general, fell back, and then dividing
selves made a lane for the Spaniards. The
another body of the nobility of a superior
who made a more splendid appearance; and
midst of them was the emperor Montezuma,
in a chair of beaten gold, on the shoulders
favourite courtiers, whilst four of them sup
a canopy over his head. The whole was ad
with beautiful feathers, through which the
appeared predominant, and the emperor was
ceded by three officers with rods of gold, the
bingers of his approach, on whose appearance
people fell upon their faces, not daring to look
their monarch. Cortez dismounting when
Mexican emperor drew near, the latter alight
from his chair, and carpets were spread in
streets for him to tread on. He advanced, with
solemn slow pace, leaning on the arms of two
princes his relations, and was met by Cortez with
a profound reverence, which the emperor an
swered by touching the ground with his hand, and
afterwards raising it to his lips; which was looked
upon as a great condescension, and added to the
esteem and veneration his subjects already had for
the Spaniards. The conference between the Mexi-
can emperor and Cortez was short at this inter-
view, after which Montezuma commanded one of
his princes to conduct the general to the palace
appointed for his residence, and then returned to
his own.

Besides the two palaces already mentioned,
Montezuma had several pleasure houses in and
about the city; in one of which were great galle-
ries, supported by pillars of jasper, and stored
with all sorts of land-fowl and birds that Mexico

produced. The sea-fowl were preserved in reservoirs of salt water; and those that were bred up in lakes and rivers, in others of fresh water. And so numerous were these fowl, that it is said to have been the business of three hundred men to look after them. In one square of the palace were kept all manner of wild beasts in their respective dens or cages, in a most regular order. In another square of the same palace were apartments for dwarfs and monsters, fools and naturals, of the human species, kept for the diversion or service of the court. Here were also armouries, well stored with all sorts of Indian weapons; and the artificers that formed and cleaned these arms, had apartments in the same quarter.

All these palaces of the Mexican emperors had spacious and elegant gardens, laid out in fine shady walks, beds of fragrant and medicinal herbs, and parterres of beautiful flowers, and embellished with magnificent summer-houses, baths, arbours, and fountains. But there was a building in the most solitary part of the gardens, which surprised the Spaniards more than any thing they met with, and it was called the House of Sorrow, because the emperor used to retire thither on the death of his relations, or on any calamity, public or private. The roof, the cieling, and the sides were black, and only just so much light was admitted as to discover the dismal obscurity. In this gloomy mansion, the Spanish authors pretend that Montezuma used to converse familiarly with the prince of darkness.

The principal of the Mexican temples was dedicated to Vixtlipuzli, the god of war. The whole edifice formed a large square, and was encompassed by a wall of hewn stone, and adorned

on the outside with knots of twisted serpents. At a little distance from the chief gate was a place of worship, built of stone, having an ascent of thirty steps, which led to a long flat roof, and the front of it (as the Spaniards relate) was decorated with the skulls of men who had been sacrificed to the idols. On each side of the square was a magnificent gate, and over every one of them four statues, supposed to represent some subordinate deities. At the foot of the wall within were the apartments of the priests, and of their inferior officers and servants; and yet there was room enough left for eight or ten thousand persons to dance on solemn festivals. In the middle of the square was a structure of a pyramidal form, three sides whereof were smooth, and the fourth ascended by a hundred and twenty steps. There was a terrace on the top, forty feet square, laid with jasper of different colours. This was surrounded with twisted rails, and on each side was a marble statue, supporting a large candlestick, between which was a green stone, five spans high from the ground, which terminated in a point; and on this, it is said, they extended the human victims they sacrificed, throwing them on their backs, and ripping them open with sharp flints instead of knives; after which they tore out their hearts, and offered them to their idols.

On the farther side, opposite to the stairs, stood a chapel of exquisite materials and architecture, where an idol was placed above an altar. This image was of human form, and set on a throne, sustained by an azure globe, which they called *heaven*; and from the sides of it issued four rods, whose *ends* resembled the heads of serpents. On the head of the image was a helmet, adorned with

plumes of various colours; and its countenance was severe and terrible. In the right-hand it held a twining serpent, which served for a staff; and in the left-hand four arrows, which were revered as the gift of Heaven. It likewise bore a shield, adorned with fine white plumes in form of a cross.—On the left-hand was another chapel, in which was the image of Tlalock, another of the Mexican deities, almost in every respect resembling the former. These two idols were so intimately united, in the opinion of the poor Indians, that they ascribed to them the same attributes, and paid them the same honours. The walls and altars of these chapels were immensely rich, being covered with jewels and precious stones, set on feathers of various colours. There were eight of these temples in Mexico, of similar architecture and equal wealth; besides two thousand small ones, dedicated to so many different gods, every street having its tutelar deity, every distress or calamity its particular altar.

On an island in the lake, about two leagues from Mexico, was situated Iztacpalapa, the two cities having a communication by a spacious stone causey. This town consisted of ten thousand houses, many of which were built like those of Mexico. The rooms of the Cacique's palace were hung with cotton-linen, finely painted; and among the curiosities in his garden, he had a square reservoir, with stairs to go down to the bottom, each side being four hundred paces.

Another city called Cholula, was for beauty like Valladolid in Spain, containing twenty thousand souls, and having suburbs of equal dimensions.

The city of Tlascala was also built

stone and brick, like the houses of Mexico, and was situated on four eminences, which were united and defended by a stone wall: so well were the Mexicans skilled in architecture in those days, though now there are not any towns in the country built of brick or stone, except those in possession of the Spaniards.

As to the Indian antiquities about Mexico, the Spaniards have destroyed the greatest part of them, but about seven leagues from the city there still remain two remarkable pieces, viz. the pyramids of the sun and moon, the founders of which are not known. They appear cut out in steps like those of Egypt; and on the top of them formerly stood two images of a monstrous size, representing the sun and moon, which the Indians worshipped. The pyramid of the sun stands about two hundred paces from the other, and is about a fourth part higher.

On a high hill near the Tyoga river in Pennsylvania, are to be seen the remains of a very ancient fortification, which is of a circular form, and encompassed by an intrenchment. From appearances it is conjectured that pits were sunk in several places, and lightly covered over, so as to decoy the assailants in case of an attack, and defeat their attempts in storming the works. The entrenchment only remains; but it seems to have been formerly stockaded.—The natives are entirely ignorant of the origin of these works, but suppose they were erected by the Spanish Indians.—The hill is an excellent station for a fort, and commands a delightful view of the circumjacent country. There is another fortification of a similar kind at Una-dilla.

The number of old forts found in the Kentucky

country, in the Western Territory, are the admiration of the curious, and afford ample matter for speculation. They are generally of a circular form, situated on well chosen ground and contiguous to water. When, or by whom, these were thrown up, cannot now be ascertained; but they are certainly very ancient, as there is not the least visible difference in the age or size of the timber growing within these forts, and that which grows without; and even the oldest natives have lost all tradition concerning them. They must have been the work of a people much more devoted to labour than the present race of Indians; and it is difficult to conceive how they could be constructed without the use of iron tools. At a convenient distance from each of these works stands a small mount of earth, thrown up in the form of a pyramid, and in some measure proportioned to the size of the adjacent fortification. On examination, these mounts have been found to contain a chalky substance, supposed to be human bones.

Barrows, or sepulchral mounts, are also found in other parts of America. These, according to Mr. Jefferson's account, are of various sizes, and different materials; some of them being constructed of earth, and others of loose stones. That they were depositories of the dead is sufficiently obvious, though the time and origin of their construction are now enveloped in impenetrable obscurity. Some have supposed, that they covered the bones of those who have fallen in battles fought on the spot of interment. Some ascribe them to the custom, said to prevail among the Indians, of collecting, at certain periods, the bones of all their deceased *friends*, wheresoever deposited at the time

of their decease. Others again have supposed them the general sepulchres of towns, conjectured to have stood on these grounds; and this opinion was supported by the quality of the lands in which they are found, and by an old tradition, that when the aboriginal Indians settled in a town, the first person who died was placed erect, and earth put about him, so as to cover and support him; that when another died, a narrow passage was dug to the first, the second reclined against him, and the cover of earth replaced, and so on.

"There being one of these barrows in my neighbourhood," says Mr. Jefferson "I wished to satisfy myself which of these opinions was just; and for this purpose I determined to open and examine it thoroughly. It was situated on the low grounds of the Rivanna, and opposite to some hills, on which had formerly stood an Indian town. It was of a spheroidical form, about forty feet diameter at the base, and had been about twelve feet high, though now reduced by the plough to seven feet and a half, having been under cultivation about a dozen years. Before this, it was covered with trees of twelve inches diameter, and round the base was an excavation of five feet depth and width, [illegible] the earth had been taken to form the [illegible]

[illegible] I first dug superficially in several parts, and [illegible] human bones, at different [illegible] three feet below the surface. [illegible] the utmost confusion, [illegible] some horizontal, and [illegible] compass, entangled [illegible] by the earth. Bones [illegible] were found together, as,

for instance, the small bones of a foot in the hollow of a skull; and several skulls were sometimes seen in contact, lying on the face, on the back, top, or bottom, so as to give the idea of bones emptied promiscuously from a bag, or basket, and covered over with earth, without any attention to their order. The bones of which the greatest numbers remained, were skulls, jaw-bones, teeth, the bones of the arms, thighs, legs, feet and hands. A few ribs remained, and some vertebræ of the neck and spine without their processes; but there was only one instance of the bone which serves as a base to the vertebral column. The skulls were so tender, that they generally fell to pieces on being touched; but the other bones were stronger.

"There were some teeth which were judged to be smaller than those of an adult; a skull which on a slight view, appeared to be that of an infant, but it fell to pieces on being taken out, so as to prevent satisfactory examination; a rib and a fragment of the under jaw of a person about half grown; another rib of an infant; and part of the jaw of a child, which had not cut its teeth. This last furnishing the most decisive proof of the burial of children here, I was particular in my attention to it. It was part of the right half of the under jaw. The processes by which it was articulated to the temporal bones were entire; and the bone itself firm to where it had been broken off, which seemed to be about the place of the eye-tooth. Its upper edge, wherein would have been the sockets of the teeth was perfectly smooth. Measuring it with that of an adult by placing their hinder processes together, its broken end extended to the penultimate grinder of the adult. This bone was white, all the others of a sand colour. The bones of in-

fants being soft, they probably decay so
which might be the cause so few were found
"I proceeded then to make a perpendicular
through the body of the barrow, that I might
mine its internal structure. This passed about th
feet from its centre, was opened to the former s
face of the earth, and was wide enough for a m
to walk through, and examine its sides. At t
bottom, that is on the level of the circumjacen
plain, I found bones; above these a few stones
brought from a cliff a quarter of a mile distant
then a large interval of earth, then a stratum o
bones, and so on. At one end of the section were
four strata of bones plainly distinguishable; at the
other three; the strata in one part not ranging
with those in another. The bones nearest the sur-
face were least decayed. No holes were disco-
vered in any of them, as if made with bullets, ar-
rows, or other weapons. I conjectured that in
this barrow might have been a thousand skeletons.
"The circumstances above related militate
against the opinion that this place was designed to
cover the bones only of persons fallen in bat-
tle; and against the tradition also which would
make it the common sepulchre of a town, in which
the bodies were placed upright, and touching each
other. Appearances certainly indicate that it has
derived both origin and growth from the accusto-
mary collection of bones, and deposition of them
together; thus, the first collection had been deposi-
ted on the common surface of the earth, a few
stones put over it, and then a covering of earth;
that the second had been laid on this, had covered
more or less of it in proportion to the number of
bones and was then also covered with earth, and

The following are the particular circumstances ich give it this aspect. 1. The number of ies. 2. Their confused position. 3. Their be- in different strata. 4. The strata in one part ving no correspondence with those in another. The different states of decay in these strata, hich seem to indicate a difference in the time of humation. And 6. the existence of infant ones among them. But on whatever occasion hese barrows may have been made, they are of considerable notoriety among the Indians: for a party passing, several years ago, through the part of the country where this barrow is, went through the woods directly to it, without any instructions or enquiry; and having staid about it some time, with expressions which were construed to be those of sorrow, they returned to the high road, which they had left about half a dozen miles to pay this visit, and pursued their journey.

"There is another barrow, much resembling this in the low grounds of the south branch of Shenandoah, where it is crossed by the road leading from the Rock-fish-gap, to Staunton. Both of these have, within these dozen years, been cleared of their trees, and put under cultivation; are much reduced in height and spread in width by the plough; and will probably disappear in time. There is another barrow on a hill in the blue ridge of mountains, which is made up of small stone thrown together; this has been opened, and found to contain human bones, as the others do."

BUILDINGS.

THE famous city of Mexico, which is ar
bishop's see, and the residence of a Spanish
roy, stands on a lake of its own name, on th
side of a valley, at the foot of a ridge of hills
is only to be approached by five causeys; bu
no gates, walls, nor artillery. It is one of the
regularly built cities in the world, the streets
ing straight, and crossing one another at r
angles, and in the narrowest of them th
coaches may go abreast. It is almost quadr
gular; being more than five miles one way, a
little less than four the other, and contains abo
a hundred thousand inhabitants, many of the
immensely rich; the most valuable commoditi
of the East and West Indies, as well as Europ
being daily exposed to sale in their market
place, which is a spacious square in the middl
of the city. The houses are built of brick and
stone, but not very high, the country being sub-
ject to earthquakes; and as all the edifices are
very convenient, so some of them are very mag-
nificent, especially the cathedral, which was sixty
years in building, and is embellished with the
finest painting, gilding, carving, and other orna-
ments. This structure, with the cloysters and
dwellings of the clergy adjoining to it, takes up
large space of ground; and the revenues be-
nging to it are equal to the beauty and magni-
ficence of the buildings. The high altar is said
o have cost fifty thousand pieces of eight, each
piece about four shillings and sixpence English;
of the chalice for the ordinary service eleven

thousand, being of gold enchased, and set round with rubies. There is also an image of the Virgin Mary, which is of massy silver, adorned with rubies and pearls to the value of thirty thousand pieces of eight, and which is annually carried in procession, when a certain number of maids draw lots, for three hundred pieces of eight for their portions.

Besides the cathedral there are about thirty other fine churches, twenty-two convents of both sexes, and several hospitals richly endowed. The revenue of the cathedral is at least seventy thousand pounds per annum, of which the archbishop has fifteen thousand, besides a great many fines and other perquisites.

The great square or market-place already mentioned, has a piazza on one side of it, under which are some of the richest shops in the world; and on the opposite side stands the magnificent palace of the viceroy, which was re-built in the year 1698, and whose principal front is not inferior to that of the palace at Naples, which it resembles, particularly in its noble stair-case, leading to a great number of beautiful apartments: and yet the archbishop's palace, which is built round like a theatre, is reckoned a more stately and elegant structure than that of the viceroy.

Next to this great square is a street called the Plateria, inhabited by goldsmiths and silversmiths, whose shops are furnished with such a variety of utensils and ornaments of gold, silver, and jewels, as perhaps cannot be paralleled in any other city in the world: for here even the Negro women that walk by the ladies coaches wear bracelets of gold, pearl necklaces, and jewels in their ears; and the black foot-boys are

dressed in rich liveries, trimmed with gold and silver lace. Here they are continually making either church or family plate, especially when the merchants are bespeaking goods against the arrival of the galleons; at which time the shops and warehouses are filled with chests of plate designed for Spain, piled up to the very cielings. The glasses or sashes, like those of our goldsmiths, are full of gilt plate, and their cabinets are filled with vast quantities of rings, pearls, large jewels, numberless toys, especially gold snuff-boxes, enamelled and set with rubies and emeralds, of which it is said ten thousand are sometimes to be seen in this street, and hardly a fleet departs for Spain without carrying off at least five hundred.

The street where the mercers expose their silks, has a very grand appearance; and that where the tradesmen reside, who deal in brass, steel, and iron ware, is very long and spacious: but the street inhabited by the nobility, gentry, and lawyers, without any shops intermixed, exceeds all the rest for stately buildings, the principal of which is the fine palace of the Marquis del Valle, the successor of Cortez, who conquered Mexico, which stands on the ground where the palace of the emperor Montezuma stood, and is deservedly admired for its structure and dimensions.

There is in Mexico, a pleasant ring or park, planted with trees, and adorned with fountains and water-works, whither the quality of both sexes, and the gay part of the town, resort every evening. Several hundreds of coaches are frequently seen here, most of them with fine equipages, and a great number of pages

and other servants, of whom the former are generally Negroes. The ladies are said to be great gamesters; but the chief diversion for people of all ranks is in canoes upon a fine canal, the banks whereof are furnished with vast varieties of dainties for their accommodation. Others divert themselves with fishing in boats upon the lake, carrying along with them wine and cold provisions. The neighbourhood of the city is rendered extremely pleasant by the numerous villages, monasteries, palaces, country seats, &c. which either stand on islands, or on the banks of the lake. The best water is brought to town by an aqueduct from a mountain several miles distant.

Near the beginning of this aqueduct is Chapultepec, the burial-place of the Spanish viceroys, as it was formerly of the Mexican emperors. Here is a sumptuous palace, with fine gardens and water-works, and a beautiful chapel, the ornaments of which are reckoned to have cost above a million of crowns.

New Orleans, the capital of Louisiana, is situated on the east side of the Missisippi, in thirty degrees two minutes north latitude. Some years ago, it contained about eleven hundred houses, seven eighths of which were consumed by fire, in the space of five hours, on the 19th of March, 1788. But it is now fast rebuilding. Its advantages for trade are very great. Situated on a noble river, in a fertile and healthy country, within two weeks sail of Mexico, and still nearer to the West India islands, there seems a certainty of its becoming the general receptacle for the produce of that extensive and valuable country on the Missisippi and Ohio.

St. Augustine, the principal city of East Florida, is pleasantly situated on the sea-coast. It is of an oblong figure, intersected by four streets which cut each other at right angles. The town is fortified with bastions, and enclosed with a ditch: it is likewise defended by a castle, called Fort St. John, which is well furnished with ordnance. The north and south breakers at the entrance of the harbour form two channels, whose bars have eight feet water.

The principal town in West Florida is Pensacola. It lies along the beach, and, like St. Augustine, is of an oblong form. The water approach to the town, except for small vessels, is obstructed by a low and sandy shore. The bay, however, on which the town stands, forms a very commodious harbour, and vessels may ride here secure from every wind.

Portsmouth, the largest town in New Hampshire, is seated on the south-east side of Piscataqua river, and contains about six hundred houses. Its public buildings are a court house, two churches for congregationalists, one for episcopalians, and one other edifice for public worship. Its harbour is one of the finest on the continent, having a sufficient depth of water for vessels of any burden. It is defended against storms by the adjacent land in such a manner, that ships may securely ride there in any season of the year. A light-house, with a single light, stands at the entrance of this harbour; and its vicinity to the sea renders it very convenient for naval trade.

Dartmouth college, in the western part of this state, is situated on a beautiful plain, about half a mile east of Connecticut river, and is one

of the most flourishing seminaries in the United States. The library is very elegant, and contains a large collection of the most valuable books; and its apparatus consists of a competent number of useful instruments, for making mathematical and philosophical experiments. There are three structures for the use of the students, one of which, erected in 1786, is a hundred and fifty feet long, and fifty broad, three stories high, and handsomely built. It has a broad passage running through its centre from end to end, intersected by three others. In front is a large green, surrounded by a number of handsome houses.—This college was founded by the late pious Dr. Wheelock, who, in 1769, obtained a royal charter, wherein ample privileges were granted, and suitable provision made for the instruction of youth of the Indian tribes, and also of English youths and any others. The humane attempts which have been made to civilize and educate the Indians has not been crowned with the expected success, but in other respects it has proved very useful. It has, in the four classes, about a hundred and thirty students, under the direction of a president, two professors, and two tutors; and it has also twelve trustees, who are a body corporate, invested with all the powers necessary for such a body.

Boston, the capital of Massachusetts, is built on a peninsula of an irregular form, at the bottom of Massachusetts Bay. The length of the town is nearly two miles, and it is said to contain about eighteen hundred dwelling houses.—Here are sixteen edifices for public worship; of which nine are for congregationalists, three for episcopalians, two for baptists, one for quakers, and one for in-

dependents. The other public structures ar
state house, Faneuil hall, an alms house, a w
house, and a bridewell. That building w
was formerly the governor's house, is now c
pied in its several apartments, by the cou
the treasurer, and the secretary. The p
granary is converted into a store; and the
manufactory house is now occupied by the l
Most of the public buildings are handsome,
some of them are elegant.—On the west si
the town is the mall, a very beautiful p
walk, adorned with rows of trees, and in vi
the common, which is always open to refre
breezes.

The principal bridge in this, or in any o
United States is that which was built over Ch
river, between Boston and Charleston, in
year 1786. This structure is fifteen hundre
three feet in length, being built on seventy
piers, and having a draw of thirty feet in w
The abutment at Boston to the old landi
forty-five feet and a half, and that at Charl
from the old landing is a hundred feet.

Each pier consists of seven sticks of oak
ber, united by a cap-piece, strong braces,
girts; driven into the bed of the river, an
cured by a single pile on each side, driven
liquely to a solid bottom. The piers are

erected at a suitable distance from each other, to illuminate it when necessary.

The draw is constructed on a capital plan; the machinery is very simple, and it requires the strength of two men only in raising it. The floor on the bridge, at the highest tides, is four feet above the water, which generally rises about twelve or fourteen feet.

"This bridge," says Dr. Morse, "was completed in thirteen months; and while it exhibits the greatest effect of private enterprize within the United States, it is a most pleasing proof how certainly objects of magnitude may be attained by spirited exertions."

Harvard University is situated in the village of Cambridge, about four miles from Boston, and consists of four elegant brick edifices, handsomely enclosed. The names of these buildings are, Harvard-Hall, Massachusett's-Hall, Holle's-Hall, and Holden Chapel.—Harvard-Hall is divided into six apartments; one of which is appropriated for the library, one for the museum, two for the philosophical apparatus, one for the chapel, and the other for a dining hall. The library, in 1787, consisted of twelve thousand volumes, and is continually increasing both from casual benefactions, and from the interest of permanent funds. The philosophical apparatus belonging to this university cost between fourteen and fifteen hundred pounds, and is the most complete and elegant of any in America. This university received its first charter in 1650.

Newport, the principal town of Rhode Island contains about a thousand dwelling houses, built *chiefly* of wood, and it has nine places of public *worship*, viz, three for baptists, two for congre-

wharf and paved parade lead up to it fro
harbour. The building for the library cons
one spacious room, thirty-six feet long, t
six feet broad, and nineteen high, whe
books are kept, with two small offices adjo
The principal front consists of a pedimen
portico of four Doric columns, the whole en
ture of which runs entirely round the bui
The two offices appear like wings, o
each side of the portico, and are connected
the body of the building so as to form tw
pediments, proceeding from the lower part
entablature. The east front consists
plain Doric pediment, supported by a
arcade of three arches, in the recesses of
are placed three Venetian windows. Th
side of this edifice is entirely of rustic work
stands on a base five feet from the ground
entrance is by a flight of steps, extendin
whole width of the portico. This el
building, however, is now much out-of r

centre of the city is the great square, around which are the state-house, a college and chapel, three churches for congregationalists, and one for episcopalians, which are all handsome and commodious buildings.

Several of the streets are ornamented with rows of trees, which give the city a rural appearance; and the prospect from the steeples is peculiarly beautiful. The houses are principally of wood; but they are well built, and in some instances tolerably elegant.

Yale College, at New Haven, is a brick edifice, about a hundred feet long, and forty feet wide. It is three stories high, and contains thirty two chambers and sixty-four studies, convenient for the reception of a hundred students. The college chapel, which is also of brick, is fifty feet long by forty in breadth, and has a steeple a hundred and twenty-five feet high. In this building is the public library, consisting of about two thousand five hundred volumes; and the philosophical apparatus.—The college museum, to which additions are constantly making, contains some great natural curiosities.

New York, the capital of the state of the same name, is seated on the south-west point of an island at the confluence of the Hudson and East Rivers. Its length on East River is about two miles, but it falls short of that extent on the banks of the Hudson. Its breadth, on an average, is nearly three fourths of a mile; and its circumference is about four miles. The houses, for the most part, are built of brick, and the roofs tiled. There are remaining a few houses built after the old Dutch *manner*; but the English stile of architecture has *prevailed* for almost a century. Upon the south-

strong than elegant. The first floor is
walk, excepting two apartments for the po
the city-watch. In the second story of the
wing is the assembly chamber, adorned v
following paintings:—The portrait of Co
a painting valuable only for its antiquity
character of the man. The likenesses of
king and queen of France, executed in
masterly manner and presented to Congre
most Christian majesty. And a portrait of
Washington, presented by a gentleman
land. The western wing contains a roon
council or senate, and another for the
court; and in the body of the edifice is a
hall, for the supreme judicial court.

There are four presbyterian churches
city. The first was erected in the year 17
of stone, and rebuilt in 1748: it is about ei
long, and sixty wide, with a cupola and b
stands in the upper end of Wall-street,
Broad-way. The second, erected in 17

were left in a very ruinous situation; but they have been all repaired, since the peace, at the expence of their respective congregations. The fourth presbyterian church was erected in Nassau street in 1787, and is a neat frame building, about sixty feet long, and twenty-four feet wide.

There are three episcopal churches in New York, under one charter, which was granted in the year 1697. Trinity church was situated on the west side of Broad-way, with a spacious cemetery on each side: it was about a hundred and forty-eight feet in length, and seventy-two in breadth, including the tower and chancel, and the steeple was a hundred and seventy feet in height. This was supposed to be the most stately building of the kind in America; but it was unfortunately destroyed in the conflagration which happened just after the British troops entered the city in 1776. However, it has been recently rebuilt, at a very considerable expence. St. George's chapel in Beekman street, erected in 1750, is a very neat building, formed with hewn stone, and the roof tiled. St. Paul's chapel in Broad-way, which was completed in 1766, is also a handsome edifice, and has been embellished, by order of Congress, with a superb monument to the memory of General Montgomery, who fell in the attack of Quebec, December 31, 1775. There are several other places of worship in this city for different sectaries.

Trenton, the principal town of New Jersey, is situated on the north-east side of the river Delaware, nearly in the centre of the state. This town, with Lamberton, which joins it on the south, contains about two hundred houses, and is tolerably *populous*. Here the legislature meets, the supreme *court sits*, and most of the public offices are kept.

for which reasons it is considered as the capital of the state. In the vicinity are several gentlemen's seats, finely situated on the banks of the Delaware, and ornamented with great taste and elegance.

The college of Princeton, in this state, is handsomely built with stone, and is a hundred and eighty feet long, fifty-four feet broad, and four stories high. It is divided into forty-two convenient chambers for the accommodation of the students, besides a dining hall, a chapel, and a room for the library. The situation of this college is exceedingly healthy, and the view from the balcony is truly charming. This college has been under the care of a succession of very able presidents, and has furnished a great number of civilians, divines, and physicians of the first rank in America.

Philadelphia, the capital of Pennsylvania, is situated on the west bank of the Delaware, on an extensive plain, about a hundred and eighteen miles from the sea; and contains about five thousand houses, which, for the most part, are handsomely built. The places for religious worship are as follow:—The quakers have five, the presbyterians six, the episcopalians three, the German Lutherans two, the catholics three, and the German Calvinists, the Swedish Lutherans, the Moravians, the Methodists, the Baptists, the Universal Baptists, and the Jews have one respectively.

The state house is in Chesnut-street, and was erected in the year 1735: it is rather magnificent than elegant. The state-house yard is an elegant and spacious public walk, ornamented with several rows of trees, but a high brick wall which encloses it, limits the prospect. In 1787, an elegant court

house was erected on the left of the state-house, and on the right a philosophical hall; which add very considerably to the beauty of the square.

On the south of these edifices stands the public gaol, neatly built of stone. It has a good half story, and two stories above it, and every apartment is arched with stone against fire. It is a hollow square, a hundred feet in front, and is the most handsome and secure building of the kind in America. To the prison is annexed a work-house, with yards to separate the sexes, and criminals from debtors.

The hospital and poor-house, in which are upwards of three hundred indigent people, (whether we consider the buildings, or the designs for which they were erected) are unrivalled in America. The German church, recently erected, must also rank among the most elegant buildings of this country; and it is said, that Mr. D. Taneberger, a great mechanical genius, has erected a noble organ of more than thirty stops in this church. The principal market, situated between Front and Fourth streets, is a brick edifice, fifteen hundred feet in length; and with respect to the quantity, variety, and neatness of the commodities there exposed to sale, it is not equalled in America, and probably not exceeded in the world.

The town of Bethlehem, inhabited wholly by Moravians, is pleasantly situated on the north side of Leteigh river, in Pennsylvania, over which a large wooden bridge has been recently erected. It is laid out in regular streets, and consists of about seventy-two dwelling houses, a handsome Moravian church, and an academy for young ladies. There are also three other large buildings, one of which is for single women: it is a spacious edifice,

rather abruptly on those two quarters. [illegible]
north end it subsides gradually into extensi
ture grounds; while on the south, it dop
steeply, and terminates with the stables, vi
and nurseries. On either wing is a thick g
flowering forest trees; and parallel with t
the land side, are two spacious gardens, int
one is led by the serpentine gravel walks,
with weeping willows, and shady shrubs.

The house itself which is built of wood,
and painted to resemble stone, appears ve
and convenient, and the banquetting room,
ticular, is very superb. A lofty portico,
six feet in length, and supported by eight
has a charming effect when viewed from t
ter; and the whole assemblage of the green
school-house, offices, and servant's halls
seen from the land side, has a striking resem
to a rural village; especially as the lands
side are laid out somewhat in the form of
gardens, in meadows and grass-grounds
mented with little copses, circular clum

marked out for this city was fourteen miles in circumference; a scale well adapted to the metropolis of a country, whose length is one thousand two hundred miles, and which is nearly a thousand miles in breadth. The streets run east, west, north, and south; but a variety of avenues and squares obviate the monotony that would otherwise ensue from their crossing each other at right angles. The principal streets are about a hundred feet wide, and the hollow squares are designed for the erection of statues, or other national monuments.

The capitol stands in the central and most elevated part of the city, commanding a fine prospect of all the other buildings and of the adjacent country. Here are apartments for the accommodation of Congress, and all the principal public offices, besides the courts of judicature. And on a small eminence to the west of this structure, is an equestrian statue of General Washington.

The president's house, situated upon an eminence, at the distance of a mile and a half from the capitol, is a stone edifice, two stories high; and may be pronounced one of the finest pieces of architecture in America. Between the house and the river are nearly a hundred acres of land laid out in pleasure grounds, and an extensive park runs, in an easterly direction from the Potowmac to the capitol. Here also are some elegant houses for

cept the palace, the church, the prison
or three dwelling-houses, which are
The palace was erected previously to t
tion, for the residence of the governors
lerably spacious and elegant, two stories
has two wings for offices, which are
with the principal building by a circul
This edifice, however, is now much ou
One of the halls is used for a dancing
another for a school, which are the o
uses of this palace. The episcopal
small brick building, with a bell, and
place for public worship in the town.
house is raised on brick arches, so as to
lower part a convenient market-place
principal marketing is transacted with
in their canoes and boats at the river sid

Charleston, the only considerable tow
Carolina, is situated on the tongue of lan
formed by the confluence of Ashley a
rivers, which mingle their waters imme
low the town, and form a spacious and

and little gardens behind. Some of the buildings are elegant, and most of them are neat, airy, and well finished. The public edifices are an exchange, state-house, armoury, and poor-house; besides ten churches, one meeting house, and two Jewish synagogues.

Bennington, the principal town of Vermont, is situated in the south west corner of the state, near the foot of the Green Mountain. Its public buildings are a church for congregationalists, a court-house, and a gaol. It contains a great number of elegant dwelling-houses, and is altogether a very flourishing town.

QUEBEC, the capital of Canada, is built on the bank of St. Lawrence river, on a rock, in two divisions called the Upper and the Lower Town. The Upper Town possesses a surprising strength, being equally fortified by nature and art; and many of the buildings are tolerably handsome; but in the Lower Town, the streets are narrow and irregular, and the houses, in general, are unsightly and incommodious.

The governor's house is a plain stone edifice, consisting of two parts, which are separated by a spacious court: the old division is built on an inaccessible part of the rock, and contains most of the public offices, though the apartments are small and ill contrived; the other is appropriated to the residence of the governor, and is tolerably finished. In the adjoining garden is a parapet wall, on which a few guns are planted, but the chateau itself is by no means so strong as some travellers have represented it. The other public buildings are a monastery of Franciscan friars, three nunneries, and an old edifice plainly fitted up for the accommodation of the legislative council and

HALIFAX, the capital of Nova Scoti
ated on Chebucto Bay; and has at
degree of splendor that bids fair to rival
cities in America. The streets are regu
out, and cross each other at right an
whole rising gradually from the water,
side of a hill, whose top is regularly forti
harbour is perfectly sheltered from all wi
distance of twelve miles from the sea, and
cious, that a thousand vessels may ride in
the least danger. It is commanded by se
teries of heavy cannon; and there are n
modious wharfs upon it, which have fr
to eighteen feet water at all tides. T
small but excellent careening yard for sl
royal navy; and there is an excellent li
just off the entrance of the harbour, whic
either by night or day, at the distan
leagues.

floated on the waters of the lake. The method which they adopted and still practise in making these floating gardens is extremely simple. They plait and twist together willows, and roots of marsh plants, or other materials, which are light, but capable of supporting the earth firmly united. Upon this foundation they lay the light bushes which float on the lake; and over all, the mud and dirt which is drawn up from the bottom. Their regular figure is quadrangular; their length and breadth various; but in general they are about eight perches long, and three broad, and have somewhat less than twelve inches of elevation above the surface of the water.

These were the first fields which the Mexicans had after the foundation of Mexico, and there they first cultivated maize, pepper, and other plants. In time, as these fields became numerous from the industry of the people, they cultivated gardens of flowers and odoriferous plants, which were employed in the worship of their gods, and for the recreation of their nobles. At present they cultivate flowers and garden herbs upon them. Every morning at sun-rise, innumerable vessels laden with various kinds of flowers and herbs cultivated in those gardens, arrive by the canals at the great market-place of Mexico. All plants thrive in them surprisingly; for the mud of the lake affords a very fertile soil, and requires no rain. In the large gardens there is commonly a tree or a little hut to shelter the cultivator from the oppressive beams of the sun. When the owner of a garden wishes to change his situation, to remove from a disagreeable neighbour, or to come nearer to his own family, he gets into his little vessel, and by his own strength alone, if the garden be sm

he tows it after him, and conducts it wherever pleases. That part of the lake where these floati gardens are, is a place of high recreation, whe the senses receive all possible gratification.

The natural bridge of Virginia is one of t most sublime of Nature's works, and consequent demands a place in a work of this nature. It is on t ascent of a hill, which seems to have been clov through its length, by some great convulsion. T fissure just at the bridge is, by some admeasur ments two hundred and seventy feet deep, but others only two hundred and five. It is abo forty-five feet wide at the bottom, and ninety the top; which of course determines the length the bridge, and its elevation from the water. breadth in the middle is about sixty feet, but mo at the ends, and the thickness of the mass at t summit of the arch is about forty feet. A part this thickness is constituted by a coat of eart which gives growth to many large trees; and t residue, with the hill on both sides, is one solid ro of lime-stone. The arch approaches the semi elli tical form, but the larger axis of the ellipses, whi would be the cord of the arch, is several tim longer than the transverse.

"Though the sides of this bridge," says M Jefferson, "are provided in some parts with a p rapet of fixed rocks, yet few persons have resol tion to walk over them, and look over into t abyss. You involuntarily fall on your hands a knees, creep to the parapet, and peep over looking down from this height about a minu me a violent head-ach. But if the vie e top be painful and intolerable, that fro s delightful in an equal extreme. It is e, indeed, for the emotions arising from

sublime to be felt beyond what they are here: so beautiful an arch, so elevated, so light, and springing as it were up to heaven, the rapture of the spectator is really indescribable! The fissure continuing narrow, deep, and straight for a considerable distance above and below the bridge, opens a short but very pleasing view of the North Mountain on one side, and Blue Ridge on the other, at the distance each of them of about five miles. This bridge is in the county of Rock-bridge, to which it has given name, and affords a public and commodious passage over a valley, which cannot be crossed elsewhere for a considerable distance. The stream passing under it, called Cedar creek, is a water of James river, and is sufficient in the driest seasons to turn a grist-mill, though its fountain is not more than two miles above."

The banks, or rather precipices, of Kentucky and Dick's rivers are to be reckoned among the natural curiosities of America. Here the astonished eye beholds three or four hundred feet of solid perpendicular rock, in some parts of the lime-stone kind, and in others of fine white marble, curiously chequered with strata of astonishing regularity. These rivers have the appearance of deep artificial canals; their banks are level, and covered with red-cedar groves.

through the bridle of the nose. These t
of various sizes, but lay aside the larger sor
entertainments; and the smaller do no
their eating. Their great men wear t
plates, of the shape of a heart, a span lon
ear, fastened to it by a gold ring, which
the ear to an immoderate size. They
wear a kind of coronet or bandage of
silver, about the head, eight or ten inch
and indented on the upper side; while oth
only a bandage of cane, painted red, a
round with beautiful feathers standing
besides, most of the Indians of both se
strings of shells, beads, and other toys,
from the neck down to the breast. Th
ans who reside in the Spanish towns, wea
waistcoat, wide breeches, and a short c
sembling the Spanish dress; but their legs
and only a few of them cover their feet
dals. The women have a short jacket
of cotton, over which flows a loose ro

be stupid, cowardly, and treacherous. The buildings, images, paintings, carvings, cotton cloths, manufactured feathers formed into beautiful pictures, and several other pieces of art, show the genius of the ancient Mexicans; and the loss of these is an incontrovertible proof of the decline of that genius. But to what purpose should an Indian labour to improve talents that could only serve to render his bondage more irksome?

Those Indians who have preserved their freedom in the mountains and some other parts of the country, are still a brave, generous, and humane people, unacquainted with the sordid vices and corrupt manners of the inhabitants of the Spanish towns. They spend their time in hunting, fishing, and field exercises; cultivate but little soil, sow and plant what is just sufficient to answer the purposes of nature, and allow nothing for the gratification of appetites founded on luxury. The business of planting is performed by the women, after the men have cleared the ground. The females also execute all domestic offices; spin, weave, and make cotton and linen cloth for their own or their husbands apparel; and are represented as being obedient and respectful to their husbands, who return a mutual affection.

These free Indians dwell in thatched huts, and observe little regularity in their towns; their houses neither standing contiguous nor in the least order, but are dispersed here and there; only they have one common fort or guard house, seated on an eminence, where they hold their councils, and to which they resort on the approach of an enemy. They set up small posts, seven or eight feet high, and two or three asunder, closing up the intervals with clay. The roof resembles that of a barn

covered with palmetto leaves. The buildin
about twenty-four feet in length, and twelv
breadth: the hearth is in the middle, and the
have only a hole over it, to let out the smoke: a
they have no partitions, the whole house forms bu
one room. Instead of beds they use hammock
which are hung from the principal beam; and thei
only seats and tables are blocks of wood. The
other furniture consists of earthen vessels, with larg
calabashes to hold their liquor; and their arm
as lances, darts, bows, arrows, and quivers, whic
together with their tools, are hung as ornament
round the room. Their guard house is about a hun
dred and thirty feet long, and twenty-five broa
The walls are nine or ten feet high, and the ridge
the roof about twenty feet in height, and thatche
with palmetto leaves. On the sides are narro
loop-holes, from whence they can repulse an enem
with their arrows; and the ground is, for a goo
space round, cleared of woods and shrubs, that a
enemy may find no shelter or place of concea
ment. They are defended by strong doors; bu
the Spaniards easily burn these structures, b
shooting flaming arrows into the palmetto leave
which serve for thatch.

Their principal food is either Indian cor
parched, ground into flour, and made into thi
cakes, or fruit, roots, deer, wild hogs, &c. an
sometimes fish. They frequently hunt in compa
nies, a week or a fortnight together, every ma
carrying with him a hatchet, a bow and arrow
and a long knife, with a dog to beat for game
Some women likewise go with them, to carry the
provisions of roasted plantains, parched India
corn, potatoes, yams, and a few utensils. The
lodge at night wherever they happen to be at

set, contriving to be at that time near some river. They hang their hammocks between the trees, and have scarcely any other covering but some plantain leaves, and the next morning, at sun-rising begin their hunting. Their game, which chiefly consists of a sort of small wild hogs, are slow of foot, and usually go in droves of two or three hundred; but they do not always find them, and sometimes hunt a whole day without success. When the beast is wounded or tired with the pursuit, he will stand at bay with the dogs, till the master comes up and shoots him; he then embowels the animal, and carries him to a place where the women are appointed to wait. They cut off its head, and flay and quarter it; what they intend to preserve, they barbecue, by laying it upon a wooden grate, under which is a fire of wood coals, which is kept up till the meat is well dried, and these pieces will keep a long time. When they have much game, the men assist the women in carrying it home; and when their stock of provisions is almost spent, they go out again in search for more.

Whether their animal food be fresh killed or dried, they cut it into small pieces, and, putting them into a kind of pipkin, add green plantains or other fruit, and some roots, with a great deal of pepper, stewing them seven or eight hours together in water, without suffering them to boil, which reduces the whole into a kind of pulse: then, pouring it into an earthen dish or calabash, they set it on a wooden block, and eat, sitting round it on lesser blocks, each having a calabash of water by his side to cool their fingers while they are eating. They have seldom more than one meal in a day, but eat plantains and other fruit

either raw or roasted, almost all day long. They have a great variety of liquors, but their ordinary beverage is water, with the flour of Indian corn infused in it, and drank off immediately. Their other liquors are made of different fruits, particularly plantains and pine apples; and to their juice, mixed with water, they sometimes add honey.

Their principal employments being hunting, shooting, and fishing, every man brings up his son to them, and they are said to be so expert, when children, that a boy of eight or ten years of age will split a cane set up at twenty yards distance, with an arrow discharged from his bow, and kill a bird flying. But the most expert of the Mexicans are the Mosqueto Indians, who live in the province of Honduras. These are tall, well-made, strong, and nimble, long-visaged, and have a stern look, and black lank hair. They inhabit the sea-shore and the banks of rivers, and are so expert as to turn aside any missive weapons thrown at them, with a small cane no bigger than a gun-stick. Their principal employment is striking fish, particularly the manatee and turtle; whence the English privateers, when they cruise on the Mexican coast, have usually one or two of these Mosqueto Indians on board, to strike fish; and they will take enough to maintain a ship's crew of a hundred men. When they serve the English, they learn the use of the gun, and soon become excellent marksmen; they behave with great bravery in an engagement, and never give back while supported by the party that entertains them.

We shall now proceed to the Indians of Florida, who are also of an olive complexion, and

have robust bodies, finely proportioned; but both sexes have no other clothes but a deer skin fastened round their waist. They stain their skins with the juice of plants, and have long black hair, which they twist and bind upon the head, so as to render it very becoming. The women, who are well-shaped and handsome, are so active as to climb, with surprising swiftness, to the tops of the highest trees, and swim across broad rivers, with their children on their backs. The men make use of bows and arrows, which they manage with great dexterity; the strings of their bows are made of the sinews of stags, and their arrows pointed with sharp stones, or the teeth of fishes.

Their management, with respect to their corn, which is accounted the common stock of the public, is particularly worthy of notice. The crop, which is calculated to serve only half the year, is collected into granaries appointed for that purpose; and afterwards distributed to every family, in proportion to the number of persons it contains. The soil is, indeed, capable of producing much more corn than they are able to consume, but they chuse to sow no more than will serve them six months, retiring for the rest of the year, into the deep recesses of the forests, where they build huts of palm-trees, and live upon roots, wild fowl, and fish. They are also fond of the flesh of alligators, the young of which are said to be delicious eating, but have a strong musky smell. They dress their meat, in the smoke, upon a wooden gridiron, and their common drink is water. With respect to their religion, they worship *the Sun* and Moon, and have an extreme aversion *to all Christians*; which is the less to be wondered

at, as the horrid cruelties exercised by the Spaniards on the natives of the adjacent island of Cuba and other places, could not fail of exciting their abhorrence. The people are, in general, satisfied with one wife; but the chiefs are indulged with more, though the children of only one of them succeed to the father's dignity.

The government of the Floridans is in the hands of many chiefs, who are called cassiques, and are generally at war with each other; but this is far from being carried on in an open manner; on the contrary they usually make use of surprise or stratagem, exercising great cruelty upon the men they take prisoners, but sparing the women and children, whom they carry off, and settle among them. On their obtaining a victory, they, at their return home, assemble all their friends, and feast three days and nights, spending their time in singing and dancing.

Among the various Indian nations and tribes within the vast extent of the country on the back of the English settlements, those termed the Five Nations, deserve particular notice, as being dreaded and revered by all the others, for their superior understanding, activity, and valour in war, in which constant practice has rendered them expert, they being generally at war with one nation or other, and sometimes with several at a time. Their manners, customs, and modes of dress, are, as nearly as possible, adopted by many of the other tribes; and those Indians are generally esteemed by the other nations the politest and best bred, who the nearest resemble them. *They claim* the whole of the country that lies to *the south* of the river St. Lawrence, as far as the *Ohio*, and down that river to the Wabach, from

mouth of the Wabach to the bounds of Vir-
a: on the westward they formerly extended
he lakes of Ontario and Erie; and their
ern boundaries were the lake Champlain and
British colonies. When the English first set-
in America, they were able to raise fifteen
sand fighting men; but at present their num-
are greatly reduced.

he Mohocks were once the most numerous
e among them, though they are now the small-
they however still preserve a superiority
r the rest, and are consulted and appealed to,
reat emergencies, by all the others. About
ndred years ago, they destroyed the greatest
of the Hurons, who then lived on the south
of the lake Ontario, and the remainder now
, by permission of the Five Nations, at the
t end of lake Erie. They subdued several
r nations, and obliged some to change their
tations, while others, as a badge of subjec-
, are not allowed to appear painted at any
eral meeting or congress, where the Five Na-
s attend. They have been inveterate ene-
s to the French, from the time of their first
ing in Canada, till its being conquered by the
lish; and are almost the only Indians, with-
many hundred miles, that have been proof
inst their solicitations to turn against us.

hese people are far from being deficient in
d sense and ingenuity: they have strong ima-
tions, and their memories are so retentive,
, when they have been once at a place, let it
ever so distant or obscure, they will readily
it again: even in dark cloudy weather, they
et their course with great exactness, by ob-

serving the bark and boughs of trees; the north side in Canada being always mossy, and the boughs on the other side the largest. They are grave in deportment upon serious occasions; observant of those in company; respectful to the old; and of a cool and deliberate temper, by which they are never in haste to speak before they have thoroughly considered the matter, and are sure the person who spoke before them has finished all he had to say. They have therefore the greatest contempt for the Europeans, who interrupt each other, and frequently speak altogether. Nothing is more edifying than their behaviour in their public councils and assemblies. Every man there is heard in his turn, according as his years, his wisdom, or his services to his country, have ranked him. Not a word, not a whisper, nor a murmur, is heard from the rest, while he speaks; no indecent commendations, no ill-timed applause. The younger class attend for their instruction. Here they learn the history of their nation; here they are inflamed with the songs of those who celebrate the warlike actions of their ancestors; and here they are made acquainted with the interests of their country, and the proper mode of pursuing them.

There is no people amongst whom the laws of hospitality are more sacred, or executed with more generosity and good-will. Their houses, their provisions, even their young women, are not enough to oblige a guest. To those of their own nation they are likewise very humane and beneficent. If any one of them succeed ill in his hunting, or has his house burnt, he feels no other effect of his misfortune, than that it gives him an opportunity of experiencing the benevolence and regard of his fellow-citizens, who for that

urpose have all things almost in common. But the enemies of his country, or to those who ve privately offended him, the American is im- acable. He never, indeed, makes use of curses indecent expressions; but conceals his senti- ents, and appears reconciled, till by some trea- ery or surprise he has an opportunity of execut- g an horrible revenge. No length of time is fficient to allay his resentment; no distance of ace great enough to protect the object; he crosses e steepest mountains, pierces the most impra- cable forests, and traverses the most hideous gs and deserts for several hundreds of miles, aring the inclemency of the seasons, the fatigue the expedition, the extremes of hunger and irst, with patience and chearfulness, in hopes surprising his enemy on whom he exercises the ost shocking barbarities. To such extremes do e Indians push their friendship or their enmity; d such, in general indeed, is the character of all rong and uncultivated minds. The Indians, how- er, esteem nothing so unworthy of a man of nse as a peevish temper, and a proneness to dden anger; which has such an effect, that arrels seldom happen among them, when they e not intoxicated with liquor. Yet they are tremely sensible of the pleasures of friendship; r each of them, at a certain age, makes choice of e nearly of the same standing in life, to be his ost intimate and bosom friend; these two enter to mutual engagements, by which they oblige emselves to brave any danger, and run any sque, to assist and support each other. This tachment is carried to such a length, as to con- er the fear of death, which they consider only temporary separation; for they are persuade

that they shall meet and be reunited in friendship in the other world, where they shall need each others assistance, as well as here.

All the Indian nations appear to have some sense of a Deity, and a kind of religion; but this is so various, perplexed and confused, that it is difficult to give an account of it. Their ideas of the nature and attributes of God are very obscure, and absurd; but they all acknowledge him to be the Creator of the world; and seem to have some idea that there are spirits of a higher and more excellent nature than man, and, supposing them every where present, they frequently invoke them, and express a wish to act agreeably to their desires. They likewise imagine that there is an evil spirit, who is always inclined to mischief; and as they are persuaded that he has great power, he is a principal object of their devotions; for they generally address him most heartily, beseeching him to do them no harm: but, supposing the other to be propitious, and always inclined to do them good, they intreat him to bestow blessings upon them, and prevent the evil spirit from hurting them. In order to procure the protection of the good spirit, they imagine it necessary to distinguish themselves by becoming exact marksmen, expert hunters, and good warriors.

They have great dependence on their dreams, believing that from the dreams of youth, may be collected the history of their future life: hence, when they arrive at a certain age, dreaming is made a kind of religious ceremony, which is thus performed: They besmear their faces all over with black paint, and fast for several days, in which time they expect the propitious spirit will appear

them, in some form or other, while they sleep. eir priests frequently persuade the people, that ey have revelations of future events, and are thorised to command them to pursue such and ch measures; they likewise interpret all the ople's dreams, and unfold the mysteries of reli- on. The other world they represent as a place ounding with an inexhaustible plenty of every ng desirable, where they shall enjoy the full tification of all their senses. This is, doubtless, e motive that induces the Indians to meet death th the utmost indifference and composure; none them being in the least dismayed at the news t they have but a few hours or minutes to e.

Polygamy is practised by some nations, but in st they are contented with one wife; and it is d that no nation of the North-American Indians without a regular marriage, in which are many remonies, the principal of which is said to be e bride's presenting the bridegroom a plate of rn. Though the women are incontinent while ngle, they are remarkably chaste after marriage. he punishment both of the adulterer and the lulteress is in the hands of the husband himself, nd is often severe, from its being inflicted by he who is both the injured party and the judge. heir marriages are not very fruitful, but their ildren are brought forth with little pain, and e mothers suffer but little diminution of their ual strength. They are so fond of their chil- ren, that they seldom wean them till they are wards of two years old, and carry them on their cks, till the burthen becomes quite insupporta- e. As soon as they can walk, they go when and here they please; but their parents instru

them very early in the use of arms, and frequently relate to them the great achievements of their ancestors, in order to inspire them with bravery. They introduce them very early into the public councils, and make them acquainted with the most important affairs and transactions: this accustoms them to secresy, gives them a composed and manly air, inspires them with emulation, and makes them bold and enterprising. They seldom chastise their children, for, when they are young, they say they are not sufficiently endowed with reason, for, if they were, they would not do wrong: when they are more advanced in life, they do not then chastise them, because, being capable of judging they ought to be masters of their own actions, and not to be accountable to any one. In the same manner, they excuse any ill treatment they receive from a person in a state of inebriety: "Should we blame or punish him," say they, "when, being void of reason, he knows not what he does?"

The men are remarkable for their indolence, on which they seem to pride themselves, pretending that labour would degrade them, as belonging solely to the women, while they are formed only for war, hunting, and fishing. However, they make their arms and fishing-lines, form their canoes, and build and repair their houses; though they frequently oblige the women to assist them, even in those employments, besides their attending all domestic affairs.

Liberty, in its fullest extent, is their darling privilege, it being the great and fundamental principle of their policy, that every man is equally free and independent, and that nothing can be a compensation for the loss of liberty. Avarice is utterly

unknown among them, and they are neither prompted by ambition, nor actuated by a love of gold; for the distinctions of rich and poor, high and low, do not so far take place among them, as to create the least uneasiness, or excite the resentment of any individual; hence the brave and deserving, in whatever circumstances, are sure to be esteemed. Their feasts, whether at a triumph, a visit, or a funeral, are very simple. Each guest however is sure to be treated kindly, and is neither the subject of ridicule, while present; nor of cruel remarks, when absent. On these occasions, a servile regard is never paid to the distinctions of rich and poor, so as to lessen the spirit and pleasure of conversation, when the company happens to be formed of a mixture of both. When any business of consequence is transacted, they appoint a feast upon the occasion, of which almost the whole nation partakes: but upon matters of less general concern, are lesser feasts, to which none are invited, but those engaged in that particular business. Before the entertainment is ready, the principal person begins a song, on the remarkable events of their history, and whatever may tend to their honour or instruction. The others sing in their turn. They have also dances, chiefly of a martial kind; and no business or solemnity is carried on, without songs and dances.

The general in chief, who may be considered as their king, is usually chosen by the elders or heads of tribes; and his election is also attended with singing and dancing; but he is rather reverenced as a father than feared as a monarch; for he has no guards, no officers of justice, and no *prisons*. The other forms of government may be considered as a kind of aristocracies, in which

no other qualification is absolutely necessary for their chiefs, but age, with experience and ability in their affairs. However, there are generally in every tribe, some particular families, from whence they chuse their chiefs, unless they are deemed unworthy of that rank; indeed, there are some of the tribes themselves, who, on account of their number or bravery, have a pre-eminence over the rest, which, not being exacted with pride, is never disputed, where due.

The great council is composed of the heads of families, and such whose capacity has raised them to the same degree of consideration. These meet in a house built in each of their towns, where they receive ambassadors, deliver them an answer, sing their traditionary war songs, and commemorate the virtues of their deceased relatives. Here they likewise propose all such affairs as relate to the state, which have been already digested in the secret councils, where none but the head men assist. The chiefs seldom speak much themselves at these general meetings, which are always public; but entrust their sentiments with a person called their speaker or orator, there being one of this profession in every tribe and town. Their manner of speaking is natural and easy, their words strong and expressive, their style bold, figurative, and laconic, nothing being said but what is necessary either to inform the judgment, or excite such passions as the subject naturally requires.

The same council has likewise the charge of the peace and order of the community. Their *suits are* few, and soon decided; for they have *neither* property nor art sufficient to render them *perplexed* and tedious. When criminal affairs are

grant as to become a national concern, they ought before the same jurisdiction: but, in ary cases, the crime is either revenged or romised by the parties concerned. If a mur- e committed, the family that has lost a rela- repares to kill the murderer, which is no r done, than the kindred of the last person think themselves as much injured, and as able in taking revenge, as if the violence ot began among themselves. But things are neral determined in a more amicable manner: ffender absents himself, and his friends send a liment of condolence to those of the party ered, offering them presents, which are sel- refused. Upon this occasion, the head of the y delivers the presents in a formal speech, y one, sometimes to the number of sixty es; saying, "By this I remove the hatchet the wound. By this I dry up the flowing l." And thus in a figurative manner they take , one by one, all the circumstances and con- ences of the murder. If the murder be nitted by one of the same cabin, that cabin he full right of judgment within itself, with- appeal, either to kill the guilty person, to on him, or to force him to give some recom- e to the wife or children of the slain. Mean e the supreme authority of the nation looks on ncerned.

s these people are of a vindictive disposition, frequently take up arms on very trifling pro- tions. Their private quarrels are frequently led this way, and expeditions undertaken with- he knowledge or consent of a general council. se *private* expeditions are not only winked at, xcused as a means of keeping their young

them in action, and inuring them to warlike exercises. But, when war becomes a national affair, it is entered upon with great deliberation. An assembly of the sachems and chief warriors is first called to deliberate upon the affair. In this general congress among the northern Indians and the Five Nations, the women have a voice as well as the men. When they are assembled, the chief sachem or president, taking up the tomahawk, which lies by him, says, "Who among you will go and fight against such a nation? Who among you will bring captives from thence, to supply the place of our deceased friends, that our wrongs may be revenged, and our name and honour be maintained as long as the rivers flow, grass grows, or the sun and moon shall endure?" Then one of the principal warriors rising harangues the whole assembly, and, at length addressing himself to the young men, asks who among them will go with him to fight their enemies? On which they generally rise, one after another, and fall in behind him, while he walks round the circle, till he is joined by a sufficient number. On these occasions they have usually a deer, or some other beast, roasted whole; and, after the entertainment, the dance begins, and a war song is sung, having a relation to their intended expedition and conquest, or to their courage, their dexterity in fighting, and the manner in which they will vanquish their enemies.—Such songs are always uttered in strong and pathetic expressions, with a tone that inspires terror.

Their women have such influence in these consultations, that the issue depends much upon them: for, if any one of them, in conjunction with the chiefs, be disposed to excite one who does

not immediately depend upon them to join in the war, she presents him, by the hands of some trusty young warrior, a string of wampum, which seldom fails of producing the effect: but, when they solicit an offensive or defensive alliance with a whole nation, they send an embassy with a large belt of wampum and a bloody hatchet, inviting them to come and drink the blood of their enemies.

Previously to their acquaintance with the Europeans, the wampum, used upon these occasions, was formed only of small shells picked up on the sea-coasts, and the banks of the lakes. But it now consists of cylindrical beads, made of black and white shells, which are esteemed, among them, as much as silver and gold among us. The black they think the most valuable, but both of them are considered as great riches and ornaments. They have the art of stringing, twisting, and interweaving them in their belts, collars, blankets, &c. in ten thousand different forms and figures, so as not only to be ornaments for every part of dress, but expressive of all their important transactions. They dye the wampum of various colours; and as they are made significant of almost every thing they please, by these their records are kept, and their thoughts communicated to one another, in some degree as ours are by writing. Thus the belts that pass from one nation to another, in all important transactions, are carefully preserved in the cabins of the chiefs, and serve, both as a public treasure, and a kind of record or history.

Each nation or tribe has its distinct ensign or coat of arms, which generally consists of some *animal*. Thus the Five Nations have the bear, *wolf, otter*, eagle, and tortoise: the tribes are ex-

nerally distinguished by these names, and rude sketches of those animals are pricked and painted on several parts of their bodies. When they march through the woods, they generally, at every encampment, cut the figure of their arms on trees, especially when they have had a successful campaign, that travellers may know they have been there.

Their military appearance is terrible. They cut off all their hair, except a spot on the crown of the head, and pluck off the eye-brows. The lock left upon the head is divided into several parts, each of which is stiffened and intermixed with beads and feathers of various shapes and colours; the whole twisted and connected together, upon the top of the head; which is painted red down to the eye-brows, and sprinkled over with white down. The gristles of their ears are slit almost round, and hung with ornaments that have generally the figure of some bird or beast drawn upon them. Their noses are likewise bored and hung with beads, and their faces painted with various colours. On their breast, they wear a gorget of brass, or some other metal; and by a string, which hangs down from the neck, is suspended the scalping knife. Thus equipped they march forth, singing their war songs, till they lose sight of their village; and are generally followed by the women, who assist them in carrying their baggage, but usually return before they proceed to an engagement.

They have commonly one commander for every ten men, and, if the number amount to a hundred, a general is appointed, not strictly to command, but to give his opinion. They have no stated rules of discipline, nor fixed methods of carrying on

ar; but make their attacks in as many different
ys as there are occasions, but generally in flying
ties, equipped for that purpose with a thin light
ss, usually consisting of nothing more than a
t.

The weapons in use among those who trade
h the English, are commonly a firelock, hatchet,
scalping knife; but the others use tomahawks,
vs, and pikes.

The tomahawk is an ancient weapon used by
n in war, before they knew the use of iron and
l; since which hatchets have been substituted
heir room; but it still retains its use and import-
e, and, like the calumet or pipe of peace, is fre-
ntly very significant. This instrument has a long
dle, and towards the other end is a round knob
olid wood, calculated to knock a man down;
he side is a point bending a little towards the
dle, and from the knob projects another point
considerable length, to thrust with like a spear.
very morning the commander harangues his
achment, giving his advice for the conduct of
irs during the day. If on any occasion he
ld detach a party, he proposes the affair, and
s his opinion how and by what number, it
ld be performed; and it seldom happens that
opposed in any of his measures; for the quali-
tions necessary to recommend a person to
chief command, are his being fortunate, brave,
disinterested; and they cheerfully obey one
m they believe possessed of all these qualifi-
ons.

The Indians, on returning from a successful
paign, manage their march so as to approach
village towards the evening, and then send
r three to acquaint their chief and the whole

for treating him with the most dread-
They first strip him, and, fixing two
ground, fasten two pieces of wood
the other; one about two feet from
and the other about five or six feet
obliging the unhappy victim to stand
er cross-piece, they tie his legs to it,
er; while his hands are extended and
gles formed by the upper piece. In
hey barn him all over the body, first
with pitch. The whole village, men,
children, assemble around him, every
him in what manner they please, each
exceed the other in cruelty; but, if
are inclined to lengthen out his tor-
either shot to death with arrows, or
h dry bark, to which they set fire.
leave him on the frame, and in the
from cabin to cabin, superstitiously
small twigs, the walls, furniture, and
vent his spirit remaining there, to re-
cruelties. The remainder of the day,
t following, are spent in rejoicing and

most usual method of murdering their
ut sometimes they fasten them to
ke, and make a fire round them; at
scald them to death, and at others
le their limbs, tear their flesh, and cut
gers and toes, joint by joint. What
extraordinary, is, that, if the sufferer
, there seems, during the whole time
ion, a contest which shall exceed, they
the most horrid pains, or he in despis-
of a groan, not a sigh, not a single dis-
ntenance escapes him, in the midst of

their prisoners on the spot, where they li
them, or in their way home, if they hav
of their escape, or find it inconvenient
them farther. These instances may serv
the inconsistencies, to which human nat
ble, and the benefit these people woul
from believing that Divine revelati
breathes an uniform humanity, and the f
of our enemies: for, had they those di
and were they taught to treat their enem
manner our holy religion inspires, how
how amiable would be their character.

The scalps of their enemies are consid
greatest trophies of their bravery, and
hang up in their houses, they being est
cording to their number. They have so
appointed, when the young men gain a
or title of honour from their chiefs; and t
are given according to the qualities of th
and his performances, of which these scal
evidence. This is all the reward they

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